THE

AMERICAN GAS-LIGHT JOURNAL.

THE OFFICIAL GAZETTE OF

LIGHT, HEAT, WATER-SUPPLY, AND SEWERAGE.

Rooms—No. 39 Nassau Street, cor. Liberty Street, opposite the Post-Office, New York.

VOL. III.—No. 43. NEW-YORK, TUESDAY, OCTOBER 1, 1861. $3 PER ANNUM.

CORNELIUS & BAKER,
MANUFACTURERS OF
LAMPS, CHANDELIERS, GAS-FIXTURES, &c.,
MANUFACTORIES:
821 Cherry St., and Fifth St. and Columbia Avenue.
STORE, 710 CHESTNUT STREET,
PHILADELPHIA.

MITCHELL, VANCE & CO.,
MANUFACTURERS OF
CHANDELIERS,
AND EVERY DESCRIPTION OF GAS-FIXTURES.
WAREHOUSE, No. 620 BROADWAY.
Manufactory, 335, 337, 339, 343 West 24th Street,
NEW YORK.

GAS-FIXTURES.
BALL, BLACK & CO.,
565 and 567 Broadway,
CORNER OF PRINCE STREET, NEW YORK,
In addition to their large stock of
RICH GOODS,
Offer for sale a large assortment of
CHANDELIERS AND GAS-FIXTURES
Of every description and of the newest styles,
Both
FOREIGN AND DOMESTIC
Manufacture.

FELLOWS, HOFFMAN & CO.,
(LATE STARR, FELLOWS & CO.,)
MANUFACTURERS OF
Gas-Fixtures and Chandeliers,
Solar, Camphene & Fluid Lamps, Girandoles, Hall-Lanterns, &c.
No. 74 BEEKMAN STREET, NEW YORK.
MANUFACTORY, 71, 73, 75, 77, 79, 81, 83 Boerum Street.
And 88, 90, 92, 94, 96, 98, and 100 Johnston St., BROOKLYN, N. Y.

E. V. HAUGHWOUT & CO.,
488, 490, & 492 Broadway,
Corner of Broome St., New York,
Gas-Fitters and Contractors for the Erection of Gas-Works.
Messrs. E. V. HAUGHWOUT & Co. have on hand a most extensive assortment of the newest and most desirable styles of
CHANDELIERS, BRACKETS, LAMP-POSTS, AND GAS-FIXTURES OF EVERY DESCRIPTION,
to which they would respectfully call the attention of the public.
☞ Gas-fitting done in the most workmanlike manner, and on reasonable terms.

C. A. VAN KIRK & CO.,
MANUFACTURERS OF
Gas-Fixtures and Chandeliers,
Ambrose's Patent Coal-Oil Burners, to be used without Chimnies,
Patent Paragon Coal-Oil Burners, Patent Improved Excelsior
Coal-Oil Burners, Hand Lamps, Columns, &c.
MANUFACTORY AT FRANKFORT, PHILADELPHIA.
SALES-ROOM, 626 CHESTNUT STREET.
☞ Every article warranted equal in design and workmanship to any manufactured in the country.

M. L. CURTIS,
141 ELM STREET, NEW YORK CITY,
MANUFACTURER OF
GAS-FIXTURES.
GAS-FITTING IN ALL ITS BRANCHES.
OLD CHANDELIERS, &c., RE-FINISHED IN GILT, OR BRONZED,
OR MADE TO APPEAR EQUAL TO NEW.

ANALYTICAL CHEMIST.

C. ELTON BUCK, ANALYTICAL and Consulting Chemist, 39 Nassau st., New York. Analyses of Ores, Minerals, Soils, Guanos, Coals, &c., and Tests of Commercial Articles, carefully and promptly made. Consultations may be had, and opinions given on Chemical questions. Samples for analysis from a distance, may be sent by mail or express, directed to the Laboratory as above.

MISCELLANEOUS.

WOODEN TRAYS FOR GAS-PURIFIERS.—JOHN L. CHEESMAN, No. 147 Avenue C, near Tenth street, New York, manufactures his Patent WOODEN TRAYS for GAS-PURIFIERS, *cut out of the solid wood*, superior to the ordinary iron plates, cheaper and more durable. The attention of Gas Companies and Engineers is called to this improvement, which has been adopted by the following Gas-Works:
Albany, N. Y. Manhattan, N. Y. City.
Chicago, Ill., Philadelphia, Penn.,
Williamsburgh, N.Y., Worcester, Mass.
See engravings on page 148, vol. II.

HARRIS LOUDERBACK,
FIRE-BRICK LAYER
AND GAS RETORT SETTER,
No. 1005 Clement Street, Philadelphia.

MESSRS. J. WRIGHT & CO., CONSULTING ENGINEERS and SOLICITORS of PATENTS, No. 42 Bridge street, Blackfriars, London, E. C. Patents for inventions obtained in all countries where Patent Laws are in force.

HOT WATER GAS STOVES, Manufactured by HUNTER, KELLER & Co., 144 Centre street, New York.
See Engravings on page 163, Vol. II. of this JOURNAL.

PHOTOMETER APPARATUS and Room for Sale.—The Room is about 6 feet wide by 12 feet long, painted black inside and screwed together. It can be taken down and boxed for transportation. All the pipes and fittings are complete for immediate use. Address PHOTOMETER, care of the AMERICAN GAS-LIGHT JOURNAL, 39 Nassau street, N. Y.

WATER-GAS WORKS.

WATER-GAS.—APPLETON & GRAHAM,
AGENTS FOR THE
NEW ENGLAND WATER-GAS CO.,
UNDER THE SANDERS PATENT,
Are prepared to give estimates for Works, and guarantee the cost of Gas not to exceed One Dollar per 1000 cubic feet.
☞ Coal or Rosin Gas-Works altered at small expense.
A. & G. continue as heretofore to erect their improved Rosin and Rosin-Oil Works for Private Dwellings, Factories, &c. For further particulars apply at 56 Washington st., Boston.

Gwynne's Water-Gas Apparatus,
No. 476½ BROADWAY, NEW YORK,
IS FAR SUPERIOR TO ANY OTHER machine in use, as it needs no fire or attention whatever, being entirely self-generating, and takes up but little space, three feet square being all that is required; and as it costs only $100 for ten burners, no family should be without one.
For Towns, Villages, Factories, Steamboats, or any place where steam can be easily had, we have an apparatus which will produce any quantity of rich illuminating gas, by merely decomposing the steam, and passing it through Coal Tar, or any other liquid Hydro-Carbon, the gas costing only 75 cents per 1,000 feet. It requires no purifier or gasometer, as it generates only sufficient gas for the burners lighted, the quantity being gauged by means of a self-acting regulator.
All orders for apparatus or rights must be addressed to the
CARBONIZED GAS COMPANY,
476½ Broadway, New York.
We will also furnish plans and estimates for Gas-Works of any size, and erect the same on satisfactory terms.

CARBONIZED GAS.

IMPORTANT TO GAS CONSUMERS.

THE CARBONIZED GAS COMPANY, No. 476½ BROADWAY, New York, respectfully inform the public, that they are now prepared to supply GWYNNE'S PATENT CARBONIZER, and guarantee by its use to make a saving of 33 per cent. of their gas bills, and at the same time to produce a better light than the city gas. By this process, we warrant that there will be no collections of Carbon in the pipes, a chief difficulty with other machines of the kind.

GAS-FIXTURES.

TIFFANY & COMPANY, JEWELers and importers of elegant artistic PARIS GAS CHANDELIERS, BRACKETS, PENDANTS, &c., in Bronze and Gilt.
No. 550 BROADWAY, NEW YORK.

PHILADELPHIA GAS FIXTURE Works.—Warner, Miskey & Merrill, Manufacturers, Store, No. 718 Chestnut street, Philadelphia. Warner, Peck & Co., No. 376 Broadway, New York, would respectfully inform the public that they continue to Manufacture all kinds of Gas Fixtures, Lamps, Girandoles, Bronzes &c., and that their large and varied stock comprises the simplest as well as the most elaborate patterns, designed by their French artists. They also continue to keep at their store, 376 Broadway, a large and full assortment of all their manufactured Goods. Dealers and others are invited to call and examine.

GEORGE H. KITCHEN & CO., Manufacturers of Fixtures for Gas Light purposes, Wood's Building, No. 561 Broadway, New York. Office of the Inspector of Gas Meters for the State of New York.

GASOMETER RIVETS.

PHILLIPS & ALLEN, Pennsylvania Avenue, above 22d street, Philadelphia.—GASOMETER RIVETS of all kinds.

GAS-METER FLUID.

FLUID FOR GAS-METERS.—The undersigned is prepared to furnish the Glycerine Meter Fluid in quantities to suit purchasers. *It does not evaporate, can be made to stand any degree of cold liable to occur in this country or in Canada, and does not corrode the metals of the meter. It has been in use successfully for the last three years.*
For particulars, references, &c., address the manufacturer, HENRY BOWER,
Box 863, Philadelphia, Pa.

GAS-HOLDERS.

GASOMETERS, RETORT-HOUSE ROOFS, WATER-TANKS,
PURIFYING-BOXES, COAL-CARS, COKE BARROWS,
AND ALL KINDS OF
WROUGHT-IRON WORK FOR GAS AND WATER WORKS.
Manufactured by GEORGE W. KRAFT, Chestnut street wharf, West Philadelphia, Pa.

GEORGE STACEY, CINCINNATI, O., Manufacturer of single and Telescopic Gasholders, Wrought-Iron Bridges, Girders, Joists and Stairways, Coke and Coal Wagons, Rakes, Screens, and other Gas-works tools, Slide and Cup Valves, Bolts, Nuts, Chisels, Ladles, and other tools, Wrought-Iron Roofs, for Slate and Corrugated Iron, Gas Purifiers, Washers, Centre Seal Valves and other Gas apparatus, Boiler-plate Retort Lids. Refer to—
Cincinnati Gas-Light & Coke Co.
Nashville Gas-Light Co.
Springfield Gas-Light Co.
Columbus Gas-Light Co.
Cleveland Gas-Light Co.
Covington and Newport Gas-Light Co.
Memphis Gas-Light Co.
Indianapolis Gas-Light and Coke Co.
James H. Caldwell, Esq., New Orleans.
John Jeffrey, Esq., Cincinnati.

POOLE & HUNT, BALTIMORE, MD., are prepared to execute orders for
GAS-HOLDERS,
IRON-ROOF FRAMING,
And all other descriptions of
Iron Work for Gas-Works, Water-Pipes, and Heavy Castings, and Machinery generally.

GAS-HOLDER FOR SALE.—25 feet diameter, 14 feet high, capacity about 6,800 feet. Has been in use but a short time. Good as new. Cast iron guide frame, balance weights and chains complete. Will be sold for $500 (which is less than half its cost), if applied for immediately. Address
M., Box 406 Post Office,
Philadelphia, Pa.

MEDALS AWARDED TO THOMAS GLOVER'S PATENT DRY GAS-METERS.

MANUFACTORIES

SUFFOLK ST. CLERKENWELL GREEN. & ALLEN ST. GOSWELL ST. LONDON.

BOSTON, MASS., 1 BARRETT STREET,—August 2, 1860.

RICHARD GLOVER begs to inform GAS COMPANIES and CONTRACTORS that he has always on hand a large assortment of THOMAS GLOVER'S (of London) celebrated DRY GAS METERS.

THOMAS GLOVER'S Meters have now been in use in the United States and British Provinces, for the last FOURTEEN YEARS, and are extensively used by many Gas Companies, to their entire satisfaction; and R. GLOVER can with all confidence refer to them in proof that THOMAS GLOVER'S Meters are— the most PERFECT in PRINCIPLES— the most CORRECT in REGISTRATION—and more DURABLE than any other Dry Gas Meter made in the United States or Great Britain. R. GLOVER will at all times be glad to repair any Gas Meters sent him at the above factory. If any of them are of THOMAS GLOVER'S manufacture, and of a more recent date than THREE years, he will make no charge.

DOWN & MERRIFIELD,

Nos. 340, 342, 344 and 346 West Twenty-second Street, North River, NEW YORK CITY,

MANUFACTURERS OF

WET AND DRY PATENT GAS-METERS,

Pressure-Registers, Pressure-Indicators and Gauges, Station, Show, Customer, and Experimental Gas-Meters, Centre or Hydraulic Valves, Governors, Compensators for Exhausters, and the Standard, Testing Gas-Holders* for Proving Meters, now used in the State of New York in compliance with an Act of the Legislature.

ALSO, BUNSEN'S PHOTOMETER, WITH COMPLETE APPARATUS FOR WORKING THE SAME

* The standard of measurement of this Gas-Holder is given by Professors TORREY, of the U. S. Assay Office; JOY, of Columbia College; GIBBS, of the Free Academy, and several other distinguished scientific gentlemen.

CODE, HOPPER & GRATZ,

1500, 1502 and 1504 FILBERT ST., PHILADELPHIA.

MANUFACTURERS OF

Pressure Registers, Pressure Indicators, Pressure Gauges, Photometers, Governors, Station Meters, Customer Meters, (Wet and Dry,) Experimental Meters, (Wet and Dry,) Show Meters, (Wet and Dry,) Meter Provers, Centre Seals, &c.

The high reputation which we have enjoyed for more than twenty-two years, and the fact that we have manufactured a greater number of Gas-Meters than all other manufacturers in this country combined, must present itself as a security to parties desirous of securing the most reliable instruments. Having completed a most extensive addition to our Factory, and added many important improvements to our machinery, we are enabled to fill orders entrusted to us with despatch, and in all cases *guarantee entire satisfaction.* Our Patent Rotary-Valve Dry Gas-Meter is now used by upwards of Two Hundred Gas Companies, giving general satisfaction; we therefore recommend it, believing it superior to any other Dry Gas-Meter manufactured. All Meters tested separately by a sworn Meter-Inspector, and sealed when desired.

JOHN J. GRIFFIN & CO.,

76 WEST THIRTY-SEVENTH ST.,

NEW YORK CITY,

MANUFACTURERS OF WET AND DRY GAS-METERS,

Station-Meters, Proving-Machines, Show-Meters, Test-Meters, Pressure Indicators, &c.

All of our Work is Guaranteed to be of the First Quality, as well as the material, and for this we can refer to numerous Gas-Light Companies.

JOSEPH LENNIG & CO.,

Nos. 313 & 315 NEW MARKET St., above Vine St., Philadelphia, Pa.,

MANUFACTURERS OF

Wet and Dry Patent Gas-Meters, Station, Show, Customer, and Experimental Meters, Photometers; Pressure-Registers, Indicators, and Gauges; Governors, Meter-Provers, Centre-Seals, Fluid Gauges, &c.

The flattering Testimonials we are receiving from Gas Officers, accompanied with expressions of such general satisfaction, and the fact of a tried experience for fourteen years, must present itself as a security to parties desirous of securing the most reliable Instruments. We therefore recommend our Patent Dry Gas-Meter, believing it superior to any Meter manufactured. Messrs. J. LENNIG & Co. confine their sole attention to the business of GAS-METER making.

Our materials are the best in use; the strictest attention is given to workmanship, and we guarantee entire satisfaction to all purchasers.

Purchasers may at any time inspect our Works, and the materials of which our Meters are manufactured. We are fully prepared to execute all orders, upon the shortest notice, and it will be to the interest of parties to call upon us.

☞ **Each Meter Tested Separately by a Sworn Inspector, and Sealed when desired.** ☜

METERS REPAIRED AND FORWARDED WITH DISPATCH.

WHERE GAS-WORKS AND WATER-WORKS ARE WANTED.

We are now publishing regularly the names of the thirty thousand post-towns in the United States, so that builders of gas-works and water-works, and the various manufacturers, may see where are new openings for business. And as each post-master will receive several copies of the AMERICAN GAS-LIGHT JOURNAL, for distribution, the number thus circulated will probably exceed *Three Million Copies. What a chance for advertisers!*

POST-OFFICE TOWNS IN THE UNITED STATES,

ARRANGED BY STATES AND COUNTIES,

Showing where Gas-Works and Water-Works are Wanted.

MISSISSIPPI.

50 Counties, 613 Towns, 4 Gas-Works, no Water-Works.

Adams County.

Jackson Point, Kingston, Natchez, *Washington*, (c. h.)

Amite County.

Armstead, *Liberty*, (c. h.,) Toler's,
Centreville, Rose Hill, Wall's Store,
Jacksonwood, Smithdale, Zion Hill.

Attala County.

Attalaville, Cuba, Multona Springs,
Bluff Springs, Edgefield, Newtonville,
Burkittsville, *Kosciusko*, (c. h.,) Rocky Point,
Centre, Wells.

Bolivar County.

Bolivar, (c. h.,) Glencoe, Prentiss,
Beulah, Miles' Landing, Rosedale,
Carson's Landing, Victoria.

Calhoun County.

Benela, Erin, Sabougly,
Big Creek, Hopewell, Sarepta,
Cherry Hill, Pittsborough, Short Branch,
Concord, Slate Spring.

Carroll County.

Black Hawk, Greenwood, Providence,
Carrollton, (c. h.,) Hays' Creek, Shongalo,
Ceralvo, Jefferson, Sidon,
Duck Hill, Last Chance, Smith's Mills,
Gerenton, Leflore, Valley Hill.
Middleton,

Clckasaw County.

Houlka, Palo Alto,
Houston, (c. h.,) Pikeville,
Montpelier, Prairie Mount,
Okolona, Sparta.

Choctaw County.

Bankston, *Greensborough*,(c.h) Oakley,
Bellefontaine, Green's Cross Roads, Pigeon Roost,
Bywyah, Huntsville, Poplar Creek,
Cadereta, Kilmichael, Snowsville,
Dido, Little Black, Stateland,
Fame, Lodi, Steam Mill,
French Camps, Monte Vista, White Hall,
Grahamsville, Wilcox.

Claiborne County.

Grand Gulf, Oakland College, *Port Gibson*, (c. h.,)
Grindstone Ford, Rocky Spring.

Clark County.

Beaverdam, Energy, Quitman,
De Soto, Enterprise, Shoobota.
Macksville,

Coahoma County.

Delta, Mound Place, Shuffordsville,
Friar's Point, Robson's Landing, Sunflower Landing,
Hopson's, Swan Lake,

Copiah County.

Bahala, Georgetown, Pearl River,
Burtonton, Hazle Hurst, Pine Bluff,
Caseyville, Linden, Pine Ridge,
Crystal Springs, Mount Hope, Rockport,
Gallatin, Sandifer's Mills.

Covington County.

Dry Creek, Mount Olive, Wilkesburg,
Jaynesville, Oakohay, *Williamsburgh*, (c h)
Mount Carmel, Santee, Zion Seminary.

De Soto County.

Arcabutla, Flewellin's Cross Roads Horn Lake,
Centre Hill, Greenleaf, Looxahoma,
Cockrum, Harkleroad, Olive Branch,
Crockett, *Hernando*, (c. h.,) Pleasant Hill,
Elm Grove, Senatahoba.

Franklin County.

Friendship, Knoxville, McReaville,
Hamburg, Little Spring, *Meadville*, (c. h.,)
Homochitto, McCall's Creek, Veto.

Greene County.

Adamsville, Leakesville, McLeod's,
Buck Creek, Vernal.

Hancock County.

Beppo, Habolochitto, Riceville,
Gainesville, Pearlington, *Shieldsboro'*, (c. h.)
Pinetucky,

Harrison County.

Biloxi, Handsboro', Rescue,
Flint Creek, Mississippi City, Rosalee.
Pass Christian,

Hinds County.

Auburn, Clinton, Raymond,
Bolton's Depot, Cooper's Well, Spring Ridge,
Brownsville, Dry Grove, Tallahalah,
Byram, Edward's Depot, Terry,
Cayuga, *Jackson*, (c. h.,) Utica.

Holmes County.

Acona, Eulogy, Pickens' Station,
Bolingreen, Franklin, Richland,
Durant, Goodman, Tchula,
Ebenezer, *Lexington*, (c. h.,) West's Landing,
Emory, Lockhart's Store, Wheeling.

Issaquena County.

Brunswick Place, Dunbarton, Skipwith's Landing,
Deer Creek, Schola, *Tullulah*, (c. h.)

Itawamba County.

Bigby Fork, Mooreville, Saltillo,
Boland's, Oak Farm, Thompson's Store,
Campbellton, Ozark, Tremont,
Cummingsville, Plantersville, Van Buren,
Fulton, (c. h.,) Pleasanton, Verona,
Marietta, Priceville, Woodlawn,
Maryville, Richmond, Yocony.
Ryan's Well,

Jackson County.

Brickley, Elder's Ferry, Ocean Springs,
Cross Roads, Jackson C. H., Pascagoula,
Donelson, Three Rivers.

Jasper County.

Buckley's, Etchoma, Prairie Line,
Claiborne, Garlandville, Tallahoma,
Colemanna, Montrose, Turnersville,
Davisville, *Paulding*, (c. h.,) Twistwood.

Jefferson County.

Church Hill, *Fayette*, (c. h.,) Union Church.
Rodney,

Jones County.

Ellisville, Erata, Pinnellville.
Owenton,

Kemper County.

Big Oak, Fort Stephens, Pleasant Springs,
Black Water, Kellis Store, Red Bud,
Calvert's Store, Kemper Springs, Rocky Mount,
Daneville, Peden, Scooba,
De Kalb, (c. h.,) Wahalak.

La Fayette County.

Abbeville, Delay, *Oxford*, (c. h.,)
Banner, La Fayette Springs, Paris,
Caswell, Liberty Hill, Spring Dale,
College Hill, Maple Springs, Taylor's Depot,
Dallas, Wyatt.

Lauderdale County.

Alamutcha, Lauderdale Springs, Rawsonville,
Battlefield, *Marion*, (c. h.,) Sookalena,
Chunkeyville, Marion Station, Spring's Depot,
Daleville, Mark Well, Why Not,
Hurricane Creek, Meridian, Zero.
Okatibbee,

Lawrence County.

Brookhaven, *Monticello*, (c. h.,) Rayville,
Fair River, Oak Vale, White Sand.

Leake County.

Carthage, (c. h.,) High Hill, Thomastown,
Edinburgh, Pensacola, Walnut Grove,
Good Hope, Standing Pine, Yorka.

Lowndes County.

Caledonia, Mayhew's Station, Vinton,
Columbus, (c. h.,) Tibby Station, Waverly,
Crawfordsville, Toland's Depot, West Point.

Madison County.

Battle Springs, *Canton*, (c. h.,) Sharon,
Beatie's Bluff, Kirkwood, Sulphur Springs,
Calhoun, Livingston, Vernon,
Camden, Madisonville, Way's Bluff.

Marion County.

Columbia, (c. h.,) Rocky Hill, Sandy Ridge,
Fordsville, Spring Cottage.

Marshall County.

Bethlehem, Hudsonville, Snow Creek,
Byhalia, Lamar, Tacaluche,
Chulahoma, Moody, *Tallaloosa*, (c. h.,)
Cold Water, North Mt. Pleasant, Tiro,
Cornersville, Oak Grove, Wall Hill,
Early Grove, Pink Hill, Waterford,
Holly Springs, Scales, Watson.

Monroe County.

Aberdeen, Camargo, Quincy,
Ashland, Cotton Gin Port, Smithville,
Athens, *Hamilton*, (c. h.,) Splung,
Buttahatchie, Mormon Springs, Temperance Hill.

Neshoba County.

Coffadeliah, Hill's Bluff, Neshoba Springs,
Dixon, Laurel Hill, Pearl Valley,
Herbert, Philadelphia.

Newton County.

Conehatta, *Decatur*, (c. h.,) New Ireland,
County Line, Evergreen, Union.

Noxubee County.

Armitage, Cooksville, Mashulaville,
Barry, Gholson, Parkeville,
Bigbee Valley, Macon, Prairie Point,
Brookville, Shuqualak.

Oktibbehah County.

Ash Creek, Hickory Grove, *Starkville*, (c. h.,)
Cedar Bluff, Line Creek, Steelsville,
Choctaw Agency, Long Branch, Tampico,
Double Springs, Siloam, Whitefield.

Panola County.

Batesville, Eureka, Pleasant Mount,
Bynum's Creek, Keel Boat, Robinia,
Central Academy, Longtown, Sardis,
Como Depot, *Panola*, (c. h.,) Springport.
Peach Creek,

Perry County.

Augusta, (c, h.,) Enon, Monroe,
Carlile's Mills, Try Again.

Pike County.

Bogue Chitto, Conerly's, Osyka,
China Grove, *Holmesville*, (c. h.,) Summit.
Magnolia,

Pontotoc County.

Bartersville, Fredonia, Randolph,
Birmingham, Harrisburgh, Red Land,
Buncomb, New Albany, Rocky Ford,
Cherry Creek, Oak Hill, Talibenela,
Chesterville, Oldtown Creek, Tardyville,
Coonewar, Palmetto, Toccopola,
Corona, Pontocola, Turkland,
Ellistown, Pontotoc, Wallersville.
Poplar Spring,

Rankin County.

Brandon, (c. h.,) Monterey, Pelahatchee,
Cato, Orion, Pilahatchee,
Goshen Springs, Steen's Creek.

Scott County.

Damascus, Homewood, Sebastopol,
Hillsboro', (c. h.,) Ludlow, Sherman Hill.
Morton,

Simpson County.

Harrisville, New Dublin, Saunders' Creek,
Mount Zion, Old Hickory, *Westville*, (c. h.)

Smith County.

Bunker Hill, Pineville, Taylorsville,
Flower's Place, Raleigh, Trenton.

Sun Flower County.

McNutt, Shell Mound, Spring Bluff.

Tallahatchee County.

Big Mound, Eolia, Mitchell's Cross Roads
Charleston, Tuscahoma.

Tippah County.

Canaan, Lebanon, Ripley,
Claysville, McLean's Store, Ruckersville,
Cotton Plant, Molino, Salem,
Dumas, Orizaba, Shelby Creek,
Hickory Flat, Pine Grove, Spring Hill,
Irene, Pleasant Ridge, Silver Springs,
Jonesborough, Union Mills.

Tishemingo County.

Barne's Store, Carolina, Farmington,
Bay Springs, Carrollsville, Hazle Green,
Big Spring, Cartersville, Hickory Plains,
Black Land, Corinth, Highland,
Bone Yard, Cripple Deer, Iuka,
Burnsville, Cross Ridge, *Jacinto*, (c. h.,)
Burton's, Danville, Kossuth,
Cairo, Dry Run, Rienzi,
Cane Creek, Eastport, Tripoli.

Tunica County.

Anderson, *Austin*, (c. h.)

Warren County.

Bethesda, Hurricane, Millidale,
Bovina, Ingraham, *Vicksburgh*, (c. h.,)
Cardiff, Warrenton.

Washington County.

Egg's Point, *Greenville*, (c. h.,) *Princeton*, (c. h.)
Point Worthington,

Wayne County.

Brotherton, Miltonville, Waynesborough,
Eucutta, State Line Station, *Winchester*, (c. h.)

Wilkinson County.

Buffalo, Holly Retreat, Newtonia,
Cold Spring, Hopewell Church, Percy's Creek,
Fort Adams, *Woodville*, (c. h.)

Winston County.

Ashfordsville, New Prospect, Randall's Bluff,
Buckhorn, Noxapater, Rome,
Fearn's Springs, Plattsburgh, Singleton,
Louisville, (c. h.,) Webster.

Yalobusha County.

Coffeeville, (c. h.,) Grenada, Pine Valley,
Cole's Creek, Jones' Mills, Post Oak,
Cuddyhunk, Mount Nebo, Preston,
Gatewood, Oakachickama, Troy,
Graysport, Oakland, Water Valley.

Yazoo County.

Benton, Deasonville, Satartia,
Cypress, Dover, Yazoo City.

THE GREAT SEWAGE WORKS OF LONDON.—At the point at which the great metropolitan sewer will fall into the Thames, a great tumbling bay will be formed, and the sewerage will flow over a series of granite steps or arches, and after falling 20 feet, will pass away into the middle of the river. Instead, however, of being delivered through the three tall arches, the sewerage will pass into the Thames by nine outlets, each sewer branching off into three smaller ones. The arrangement for admitting the sewerage into the river direct from the outfall sewer is, however, only a temporary one. A reservoir capable of holding nine millions of cubic feet of water will be formed to hold the sewage supplied during the time of low water in the Thames, and which will only be discharged into the river at high water, and then at the centre and bottom of the river, through covered channels buried under the water and consequently not exposed either to the eye or to the atmosphere. When the reservoir is finally completed, the grand cascade at the tumbling bay will only be brought into requisition at the time of heavy storms, and when one or more of the sewers overflow. A mutual arrangement exists between the three parallel sewers, by which each of them may give to its neighbor, any surplus of sewerage with which it may be charged, and which it is not able to convey conveniently. This system of sewer reciprocity, self-acting, and when the contents of a sewer rise to a certain height, it overflows into the next. The work of the sewers is thus equalized, and the storm waters of Hempstead or Highgate may be apportioned to different parts of the great system of main drainag Contracts for different portions of the main drainage schemes have been already let, and it is probable that the whole work will be speedily completed, and will not exceed the $15,000,000 which it was estimated to cost.

WATER-WORKS OF AMERICA.

KNOXVILLE, TENN.

An observing correspondent, passing a winter in the South, exhibits a commendable interest in the public works of that section, by furnishing the annexed elaborate sketch of the water-works of Knoxville, the late capital of the State of Tennessee.

Knoxville was laid off in 1792, and named in honor of General Henry Knox, of Massachusetts, then Secretary of War to General Washington. It was fixed upon by General Blount as the seat of the Territorial Government; and after the admission of Tennessee into the Union, in 1796, it continued to be recognized as the Capital of the State until 1817, when the seat of government was removed to Nashville.

The town is beautifully situated on several high bluffs, on the right bank of the Holston river, four miles below its confluence with the French Broad river, and contains some five thousand inhabitants. It is substantially built, with large warehouses, hotels, and private residences. It has a gas-works, with a capital of $63,000, about 130 consumers, and 40 public lamps, as stated in vol. 1, page 127, of this JOURNAL.

The Water-Works, as above represented, consist of a mounted horizontal reservoir, or wooden cylinder diameter, locomotive pattern, about five feet long by three feet drawn by a nondescript apparatus, composed of four walking-beams, of about half-horse power, straw being used as fuel.

The water is pumped from the river into this distributing reservoir by an African chattel, sometimes called a "contraband," useful, also, as an auxiliary to the motive power in the manner illustrated in the sketch.

While the water-works of London, New York, and Philadelphia are on a scale to challenge the admiration of the world, they have still the objection of complication and expensiveness. It is reserved for those of Knoxville, East Tennessee, to combine the elements of ingenuity, simplicity, and economy, proving that hydraulics, like other comparative objects, have their excellencies in practice, as well as their light and shade in picture, according to the subjects composing the design.

A population of five thousand souls being supplied by one machine of this description, leads one to reasonably infer that water is considered there solely in its relation to dusty streets, while the primitive notions with which it is usually associated are satisfied by the substitution of other liquids less simple perhaps, but undoubtedly more effective.

KENSINGTON, PHILADELPHIA, PA.

For some time past the residents of the old Kensington District in Philadelphia, have been annoyed at the bad character of the water furnished them. Pieces of fish and other animal remains have been frequently drawn from the hydrants, and a foul smell has characterized the water. In order to abate the evil, the residents of the district addressed a note to the Board of Health, of which the following is a copy:

To the President and Members of the Board of Health:

GENTLEMEN,—We, the undersigned, residents along Germantown road, below Second street, desire to call your attention to the filthy condition of the water now being drawn from the hydrants, and which we are compelled to use. One day last week, from one of the hydrants, was drawn a decomposed catfish, in pieces, besides skins of the same frequently, and other refuse matter; also, at times, there is such a stench from it that we are unable to drink it or use it for cooking purposes, often sending across the creek, a square off, to get the city water: ours comes from the Kensington basin. In our neighborhood, there are numerous cases of diarrhœa, no doubt brought by use of this water. Your attention to it will oblige your fellow citizens.

(Signed by a number of the residents of the District.)

The Board of Health called the attention of the Select Council to the movement in the following note:

OFFICE OF THE BOARD OF HEALTH,
S. W. cor. of Sixth and Sansom sts.
Philadelphia, July 1, 1861.

To the Select Council of Philadelphia:

GENTLEMEN,—I am directed by the Board of Health to transmit to you the following copy of a resolution, adopted by them this date, and the accompanying communication of S. B. Jones and others.

WASHINGTON L. BLADEN, Clerk.

From representations made, it appears that the condition of the water supplied to the inhabitants of the Districts depending on the Kensington Reservoir, is frequently of a character to constitute it a nuisance, prejudicial to public health.

That, in the opinion of the Board of Health, the prompt adoption of efficient measures to supply pure water to the Districts depending on the Kensington Reservoir, should claim the earliest attention of Councils, as a sanitary measure important to the public health.

By the direction of the Committee on Water, Mr. Birkinbine, chief-engineer of the Water-Works, made the following report on the expediency of using means to remedy the existing evils as connected with the distribution of water in Kensington.

To the Select and Common Councils of the City of Philadelphia:

GENTLEMEN,—The Committee on Water have directed me to report to your honorable body the facts in answer to the Board of Health relating to the condition of the water supplied by the Delaware Works. See copy of resolutions annexed.

DESCRIPTION OF THE WORKS.

These Works supply part of the Sixteenth, Seventeenth, Eighteenth, Nineteenth, and Twenty-third Wards, with water, being that part of the city lying north of Cohocksink creek, and east of Sixth street. The pumping machinery is erected at the foot of Otis, formerly Wood street, in the Eighteenth Ward. The water is taken directly from the river at the end of the wharf, which has two sluice-ways through it, constructed so as to allow the passage of the shore water and the water from Gunner's Run at ebb tide. Since the construction of the Works a wharf without sluices has been built immediately above them, extending into the river the same distance as that of the Works, and it has diverted the water from Gunner's Run, and forced it to flow around the end of it, and at ebb tide immediately in front of the suction pipe of the Water Works. It also forces the shore water out to the end of the wharf, thus preventing the scoure of the river, and as a consequence the mud has accumulated in the docks above and below the Works, so as to fill them to a great extent. The mud is now left bare at every tide. From these causes, and the fact that the Works are situated in a populous part of the city, the water pumped by them contains a large amount of organic matter, particularly when pumped at low water. There are two pumping engines, each of about eighty horse power, and one eighteen-inch pumping main, 13,260 feet long, connecting the pumps with the reservoirs, which are situated at Lehigh avenue and Sixth street. These reservoirs are capable of containing together 9,284,000 gallons; they are one hundred and twelve feet above city datum, and fourteen feet deep when full. The water is pumped into one reservoir, and suffered to flow through a pipe near the surface to the other reservoir, from which it is distributed to the District by one eighteen-inch main along Seventh street to Germantown avenue, along Germantown avenue to Norris street, and along Norris street to Frankford avenue. This main connects with and feeds the service mains of the District. The greatest amount of water that can be supplied by these arrangements is 2,250,000 gallons per day, which is not sufficient to meet the requirements of the District. The pumping capacity of both engines, when worked to their maximum speed, is six millions of gallons per day. The utmost capacity of the pumping main, when forced to all that it will bear with safety, is three and a half millions gallons per day, while the distributing capacity of the eighteen inch main is but two and a quarter millions gallons per day. Thus the pumping capacity is almost double the capacity of the pumping main, and more than double the capacity of the distributing main. To supply the deficiency in amount of water, the Department attached the pumping main to the service mains in Second street and at Frankford avenue, thus supplying a portion of the water direct from the river, without passing it through the reservoirs. This arrangement gave to the District an ample supply of water; about three and a half millions gallons per day, showing a deficiency of one and a quarter million gallons per day when supplied through the reservoirs.

CHARACTER OF THE WATER SUPPLIED.

Chemically, the water of the Delaware is perfectly satisfactory, containing less of mineral salts than that of the Schuylkill. By Clark's soap-test, the hardness of the Delaware water, taken from the channel opposite the Works, is but three and six-tenth degrees, while that of the Schuylkill water, at Fairmount, is five and four-tenth degrees. This is, however, but an inconsiderable amount, none of the nine works supplying London furnish water of less than fourteen degrees of hardness by the same test, and some of them water of sixteen degrees.

The Department have very little confidence in quantitive analysis as a test of the salubrity of water, or in chemical tests for organic matter. The condition of organic matter contained in water affects its salubrity much more than the amount. Water may contain a large amount of organic matter, and be inoxious, and a comparatively small amount of dead or decaying organic matter may prove very deleterious to those who drink it. The water of the Delaware, where it is taken by the pumps, contains organic matter, but not in a condition materially to affect its salubrity, and it may be drank with impunity, except when the tide is nearly out during the summer months, when it is largely composed of the water from Gunner's Run, which receive a large amount of objectionable drainage; it is then discolored, and full of particles of less soluble organic matter, visible to the naked eye. The water is never pumped at low tide when it can be avoided. The water taken from the pumping main as it passes to the reservoir is much the same as that of the river, being somewhat improved by passing through the pumps and mains. The water in the reservoirs have an opportunity of undergoing purification by subsiding, and the action of the oxygen in the water upon the organic matter it contains. If the reservoirs were of sufficient depth and capacity, the water would be delivered from them in a most satisfactory condition. The water supplied through the reservoirs, where there is a proper circulation through the mains, may be considered satisfactory the majority of the year, and, in some favorable localities, it is claimed to be good the whole year. In the summer months of June, July, and August, the water in the reservoirs becomes heated by the sun, as the reservoirs are not of sufficient depth; under these circumstances, other processes than those above described, go on in the reservoirs—decomposition (frequently putrescent) is hastened, the water becomes offensive both to taste and smell, and animal and vegetable organisms are produced in great abundance. This gives rise to the complaints of many of

those who use the water. If the water could remain a sufficient length of time in the reservoir, the living organisms would purify it, but, from necessity, it is delivered in its most objectionable condition. The Department has been able to correct this condition of the water by treating it with lime, slaked, in boxes upon rafts, and distributed in the reservoirs, which arrests the decomposition, and corrects the odor and taste for a short time.

We have been to some trouble to get the opinions of the character of the water from those using it, and find they are divided in opinion, some condemning the water as unfit for use, and others speaking highly of its good qualities. The condition of the water in the river, reservoirs, and mains, has been carefully observed, and frequent microscopic examinations made. The Department is forced to the conclusion that, at certain seasons of the year the water is objectionable in character, and should not be supplied to the District; but, even in its worst condition, it is probably more pure and less injurious to health, than the water taken from the shallow wells in the District.

The briskness and pellucid appearance of the water in these wells, and its coldness, are inducements for their free use, when these very apparent excellencies are frequently the result of noxious and poisonous ingredients held in chemical combination. Water from wells in populous districts should never be used for culinary or drinking purposes, no matter how inviting in appearance or refreshing to the taste.

The complaints of sickness from the use of the water in the District, if correct, are more probably due to the use of well-water than that supplied from the works.

REMEDIES SUGGESTED.

By constructing a pier at the Port Warden's line, some ninety feet further into the river, beyond the end of the wharf, leaving an open sluice-way for the passage of the shore-water and the water from Gunner's Run, water of much superior character would then be pumped. Means should also be taken to prevent the wharves being extended, above or below the works, without having similar sluice-ways through them.

A stand-pipe at the works would enable both engines to be worked to near their full capacity, thus allowing them to be stopped for two hours during each low tide.

The deepening of the reservoirs would prevent rapid and offensive decomposition in the summer months, and give time for more thorough purification of the water. Three feet could be added to their depth by carrying up their sides, at a small expense, which would probably remedy the evil of putrescent decomposition. To bring them to the level of the Spring Garden Reservoir and Corinthian Avenue Reservoir, will require seven feet added to their height; this would be attended with a very considerable outlay.

Additional distributing mains are also necessary to supply the District, by passing the water through the reservoirs as is most desirable. If there was space to construct filtering beds at the Works, the character of the water would be improved; but, unless stored in deep or covered reservoirs, the same difficulty would be experienced in the summer months.

The Works might be removed to a more eligible situation on the Delaware. There are several desirable locations between Frankford Creek and Tacony, one of which is the property of the city, purchased by Frankford for the purpose of erecting a water-works, before consolidation. The drainage of the city would not affect the Works if located here; and, by constructing subsiding reservoirs and filter-beds, (for which the shore is well adapted,) water of the most desirable character could be supplied at all times. Elevated ground can also be found in the vicinity, suitable for erecting store-reservoir upon.

The plan suggested by the Department, and recommended by the Committee on Water, of supplying this District from Schuylkill, is the least expensive, and most certain remedy.

The Department would embrace this opportunity of again calling your attention to the condition of Fairmount Dam, and the drainage into it. The subject was treated at some length in the last annual report of the Department. The water supplied from Schuylkill is inferior in quality to what it might be, although still satisfactory to those using it; the purity of the water in the Dam is being constantly impaired by the accumulation of mud, enroachments upon it, and constantly increasing drainage into it of an objectionable character.

HENRY P. M. BIRKINBINE, Chief Engineer.
Philadelphia, August 1, 1861.

WATER-WORKS OF GREAT BRITAIN.

We publish to-day a list of the names, merely, of the water-works of Great Britain. Some of the companies gave us full particulars of their business, and in some cases confidentially, but so few in proportion to the whole number of companies, that it is not worth while making a table of them. The details in our possession will be published from time to time in a desultory manner, as may be convenient. If the companies would only take the trouble to give us their data, we would cheerfully incur both the trouble and expense of tabulating them, and thus add an interesting item of information to the profession.

g. and *w.*, gas and water. * Private property.

Aberdeen,	Alexandria.
Abergavenny,	Alnwick,
Aberystwith,	Ashby-de-la-Zouch,
Accrington, *g.* & *w.*	Ashton-under-Lyne,
Airdrie and Coatridge,	Ayr.
Baildon, Yorkshire,	Bishop Auckland,
Banbury,	Blackburn,
Bangor, *g.* & *w.*	Bolton,
Barnsley,	Boston,
Bath,	Bradford,
Beccles, *g.* & *w.*	Brighton, Hove & P.
Belfast,	Bristol,
Belfer,	Broadstairs,
Bilston,	Brompton & Gillingham,
Brikenhead,	Burnley,
Birmingham,	Bury & Radcliffe,
Bury St. Edmunds.	
Campbelltown,	Chesterfield, *g.* & *w.*,
Cambridge,	Chidwall, Lancaster,*
Canterbury, *g.* & *w.*	Chorley,
Cardiff,	Colchester,
Carlisle,	Colne, Lancashire,
Carmarthen,	Cousett District,
Cheltenham,	Cork,
Chepstow,	Coventry,
Chester,	Craydon.
Darlington,	Dublin,
Dartford,	Dudley,
Dartmouth,	Dukinfield.
Darwen,	Dumfries,
Deal,	Dundee,
Derby,	Dunfernshire,
Dover,	Durham,
East Stonehouse,	Epsom, Surrey,
Edinburgh,	Exeter.
Ely,	
Falmouth,	Folkestone.
Fareham, Hants,	
Glasgow,	Gravesend and Wicton,
Gloucester,	Greenock (Shaw's Gravitation),
Gosport,	
Guisely, n. Leeds.	
Halifax,	Haverford, West,
Harrowgate,	Haworth, Yorkshire,
Hantlipool, *g.* & *w.*,	Heywood,
Hastings, East,	Huddersfield,
Hastings, West,* (Eversfield Estate.)	Hull,
	Hyde, Cheshire.*
Ilfracombe,	Inverness.
Keighley,	Kings Lynn,
Kendal Union, *g.* & *w.*,	Kirkcaldy,
Kilmarnock,	Knighton, Radnor.
Lancaster,	Limerick,
Leamington,	Lincoln,
Leeds,	Liverpool,
Leek,	Llandudno, *g.* & *w.*,
Leicester,	Llanelly,
Leith,	Liskeard.
Lewes,	

LONDON COMPANIES.

Berlin,	Lambeth,
Chelsea,	New River,
Coln,	New River London Bridge Annuities.
East London,	Southwark and Vauxhall,
Grand Junction,	West Middlesex.
Kent,	
Lowestoft, *g.* & *w.*	Lytham.
Macclesfield,	Merthyr Tydvil,
Maidstone,	Mold, *g.* & *w.*,
Manchester,	Monmouth, *g.* & *w.*
Margate,	Montrose.
Matlock,	
Nantwick, Cheshire,	North Shields,
Newcastle-on-Tyne,	Norwich,
Newport, Cairsbrooke,	Nottingham.
Newport Union,	
Oldham,	Oxford.
Ollerset, Derby,*	
Paisley,	Poole,
Pembroke,	Port Glasgow,
Penzanee,	Portsmouth,
Perth,	Preston,
Peterhead,	Pultneytown, Caithness.
Pontrefact,	
Ramsey, Isle of Man,	Rochdale,
Ramsgate,	Rotherham and Kimberwork, Yorkshire.
Reading,	
Richmond, Surrey,	Rugby.
Saint Albans, *g.* & *w.*,	South Staffordshire,
Saint Helens,	Spalding,
Saint Leonards,*	Staffordshire Pattines,
Salford,	Stamford,*
Salisbury,	Stockport,
Sheerness,	Stockton and Middlesborough,
Sheffield,	Sunderland and South Shields.
Shrewsbury,	
Southport,	
Southampton,	
Teignmouth,	Turnbridge, Wells.*
Tolcross, Lanark,	
Wakefield,	Widnes, *g.* & *w.*,
Warrington,	Wigan,
Wellington,	Winchester,
West Cowes, Isle of Wight	Windhill, Yorkshire,
Weston-Super-Mare,	Wirksworth,
Weymouth,	Wirrall, Cheshire.
Whitby,	Wolverhampton, new Co.
Whitehaven,	Worcester.
York, new Co.	

WATER METERS IN USE IN GREAT BRITAIN.

Water-Works.	*Meters.*	*Remarks.*
Ashton,	Kennedy's,	The best we have used.
Ayr,	"	Not quite reliable.
Bath,	Sieman's,	
Belfast,	Parkinson's & Kennedy's,	Both reliable, if kept in working order.
Bolton,	Kennedy's principally,	May be relied on, but require constant care and attention.
Bradford,	Kennedy's,	Find them answer their purpose very well.
Bury,	Kennedy's and Manchester Water Meter Co.'s,	Both reliable.
Cardiff,	Sieman's,	Rothinham, Yorkshire.
Chepston,	Kennedy's,	Very good.
Chorley,	Kennedy's and Duncan's,	
Coventry,	Parkinson's, low pressure and Kennedy's high pressure,	Find them correct.
Dunkinfield,	Kennedy's,	Very good.
Dumfries,	Gorman's and Kennedy's,	Reliable, so far as ascertained.
Edinburgh,	Sieman's,	Works very satisfactorily.
Glasgow,	Kennedy's,	Reliable.
Greenock,	Kennedy's,	Reliable.
Kent,	Sieman's,	On pipes from ½in. to 10in. in diameter.—Correct within 5 per cent. extreme error. Often perfect.
Kilmarnock	Kennedy's,	Excellent article.
Kings Lynn,	Sieman's,	The best we have tried.
Leamington	"	They are found reliable for trade purposes, answer well, but like Chadwick & Frost's where great accuracy is required.
Lincoln,	"	
Manchester,	Kennedy's, Sieman's and Chadwick's,	Use most of the first.
Margate,	Sieman's,	
Newcastle,	Sieman's and Kennedy's,	Both good.
Newport,	Sieman's,	
Oldham,	Kennedy's,	The best we have tried.
Perth,	"	Perfectly reliable.
Preston,	"	They are very correct.
Salisbury,	Kennedy's and Sieman's,	
St. Helens,	Parkinson's,	They are correct. I have one of Duncan's Liverpool and find it correct.
Southampt'n	Sieman's, Parkinson's & Chadwick's,	All reliable.
Whitehaven,	Kennedy's,	They are reliable.

Worcester,	Kennedy's high pressure & Parkinson's low pressure,	Both very accurate.—Prefer the high pressure for many reasons especially for convenience, as it may be fixed anywhere on the supply pipe, whereas the low pressure must be fixed at the highest point at which the water may be required.
York,	Parkinson's, Sieman's and Kennedy's,	All reliable, but find Sieman's most generally useful.

The above comprises all our information respecting water meters in Great Britain. The diversity of opinion respecting the merits of the three principal meters, is remarkable. Kennedy's meter will not go down here at all. Several British meters have been tested and found to be entirely behind the American meter invented and manufactured by Henry R. Worthington of this city. Worthington's meters are becoming extensively used in this country, and we have made enquiries about them in every direction with but one reply, that they are perfectly accurate and reliable whenever and however attached.

BISULPHIDE OF CARBON IN COAL GAS.

In the early part of last year, the battle of the Metropolitan Gas Regulation Bill was being fought in a committee-room of the House of Commons. Among the points then hotly contested—so hotly, indeed, that the barristers engaged for the companies withdrew from the field, and left the agents to fight out the case themselves—was the quantity of sulphur which was usually present, or which might be allowed to be present in gas, without detriment to the consumers or disadvantage to the companies.

It was about the same time that the Commercial Gas Company employed Mr. Versmann to make some determination of the amount of sulphur in their gas. That gentleman accordingly made a series of experiments *at the works of the company*, and the results which he obtained, together with the inferences he drew and the speculations he indulged in, are contained in the report now under review. But before we refer more particularly to this report, it will be necessary to notice briefly what had previously been said on the subject.

Sulphur is admitted on all hands to be a most pernicious ingredient in gas. It is also conceded that it is possible to make gas which shall contain a very small amount in the form of bisulphide of carbon, while it has been found perfectly easy to remove every trace of that which existed as sulphuretted hydrogen.

The amount of sulphur in gas has been variously estimated by different experimenters. Mr. Lewis Thompson, who was considered a great authority on gas chemistry, has said that the amount of vapor of bisulphide of carbon in gas is seldom less than 1-1000th of its bulk, which will correspond to about 119 grains of sulphur in 100 cubic feet. No other chemist has ever, that we are aware of, found so large an amount as this, but it seems probable that other estimates may have been as much below as Mr. Thompson's might have been above the actual amount.

On the part of the companies it has been sometimes said that sulphur in gas is a "myth," and the damage done by it a delusion. Of the mischievous results, however, there can be no doubt. One of the first things which drew public attention to the matter, was the damage done to the books in the library of the Athenæum Club. Many of our readers will, doubtless, remember the discussion on the subject, in which the most celebrated English chemists of the day were engaged. Their investigations left no doubt that the injury done to the binding of the books, was owing to sulphuric acid, formed by the oxidation of the sulphurous acid generated in the combustion of the gas. Other libraries have since suffered to an equal degree, as our readers may see by referring to Dr. Letheby's Report "on the coal-gas supplied to the city of London, 1854," and beyond this there is not a silversmith, hardware-dealer, or draper, whose shop is lighted with gas, but has his own tale of the damage done to his goods by sulphurous vapors. Mr. J. E. Clift, the proprietor of the Redditch gas-works, indeed, told the committee of the House of Commons, that it was found impossible to use gas containing sulphur in some departments of the needle factories, so injurious was it found to be. It was natural that an act of Parliament, professedly designed to regulate the quality of gas, should fix on some limit which the quantity of sulphur was not to exceed. Dr. Letheby in his evidence, we believe, said, that the largest quantity he had ever found was 20 grains in 100 cubic feet, and this was the limit fixed upon. But at one of the last sittings of the committee, (July 18th,) Mr. Baxter, on behalf of the companies, of whom, we presume, the Commercial was one, said that gas engineers admitted that if "*twenty* grains were made *forty*, it would do." The directors of the Commercial Company, we may suppose, had Mr. Versmann's report in their hands at this time, and we may now quote his results.

Series of Experiments made at the Works of the Commercial Gas Company.

Commenc't of experiment.	Cub. ft. of gas burnt.	Grains of Sulphate Baryta obtained.	Grains of Sulphur in 100 c. f. of gas.	Mean grs. of S. in 100 c. f. of gas.
1860.				
Feby. 7.	13	3.08	3.23	
" 28.	30	6.80	3.12	2.99
Mar. 5.	75	14.41	2.64	
" 14.	118	25.42	2.96	
May 17.	3.5	1.53	6.00	6.34
" 21.	2.0	0.98	6.70	

Now, we do not intend to question for one moment the perfect accuracy of the above results; but, coupling them with the fact above mentioned, they could not but excite astonishment in the mind of the most innocent person. Was it possible that the companies knew so much better than chemists how much sulphur their gas contained; or were they, when many complained of the badness of their gas, coolly asking permission to make it a great deal worse. Thinking that an independent examination might help us to a solution of these questions, and having the gas of the Commercial Company, as supplied to their customers, at command, we decided on making a series of determinations for ourselves. Our readers will see that our experiments were made at a distance of twelve months from those of Mr. Versmann; but as his report was written in June, 1860, and only issued this year, the inference is that the directors wish it to be supposed that the gas Mr. Versmann examined is the gas they ordinarily supply.

The results of our experiments were as follows:

Commenc't of experiment.	Cub. ft. of gas burnt.	Grains of Sulphate Baryta obtained.	Grains of Sulphur in 100 c. f. of gas.	Mean grs. of S. in 100 c. f. of gas.
1861.				
April 5.	25	108.7	59.56	
" 7.	25	113.8	62.34	
" 9.	25	89.5	40.03	
" 12.	25	115.1	63.07	57.38
" 22.	25	109.4	59.95	
" 25.	25	91.9	50.36	

Our readers will probably share the astonishment we ourselves felt at the enormous discrepancy between our own results and those of Mr. Versmann. Well might the companies have asked for forty grains. Sixty, indeed, would hardly have been too much for them! That there might, however, be no mistake about the matter, we instituted another series of experimants, the results of which we condense.

Cubic ft. of gas burnt.	Grains of Sulphate Baryta found	Grains of Sulphur in 100 c. f.		
		Minimum.	Maximum.	Average.
175	793.3	39.9	59.95	49.37.

For reconciling the discrepancy between the results we obtained and those obtained by the author of this report, various hypotheses suggest themselves; but as our readers are probably as ingenious in guessing as ourselves, we need not further occupy our space with the matter.

Passing from Mr. Versmann's results to his inferences and speculations, we feel bound to characterise them at once as an elaborate mystification.

"In proceeding," he says, at starting, "to the practical view of the question, *i. e.* whether this amount of sulphur [*i. e. the amount which he obtained*] may possibly become in any way injurious or obnoxious to persons inhaling the atmosphere of places where the gas is burnt, we must enter the dry field of calculation." Now, no one of credit—so far as we are aware—ever said that the sulphur was injurious to persons inhaling the atmosphere of places where gas is burnt. What has been said, and what has been proved over and over again, is that sulphur products are injurious to metal work, to the delicate colors of various dextile manufactures, to the binding of books, and many other things. On the other hand, it has been said that the healthiness of London partly depends upon the disinfecting agency of the sulphurous acid in the atmosphere, no little of which is derived from the gas.

To show, however, that the sulphurous acid cannot possibly injure people, the author goes on to calculate from his results what proportion by weight of sulphur is contained in a given weight of gas, and how much by weight and volume of sulphurous acid is formed by the combustion of a given quantity of the gas; and then proceeds to show that the burning of seven lucifer matches, would give as much sulphurous acid as the combustion of 100 feet of the worst gas he examined. We may dismiss this part of the subject with the remark, that our experiments show that, to arrive at an ordinarily correct result, Mr. Versmann's sulphurous calculations must be multiplied by eight at least, and his lucifer matches be made fifty-six, the combustion of which, in a room, would indubitably give a suffocating odor to the atmosphere.

We need not follow the author into his carbonic acid calculations, made with the view of showing the far greater danger to animal life from the amount this body formed during the combustion of the gas than from the sulphurous acid generated from the quantity of sulphur he found. *Cela va sans dire*, as our neighbors say. We may, however, express a qualified agreement with Mr. Versmann, when he says: "I am of opinion, that before any person could be inconvenienced by those quantities of sulphurous acid, he must have ceased to live, long previously, from the effects of the carbonic acid." After that event we do not imagine the sulphurous acid in this world would inconvenience him at all; but it is easy to see what Mr. Versmann means if we put *would* for *must* in the foregoing sentence.

(*To be concluded.*)

REPORT OF MR. HAYWOOD ON THE SUPPLY OF NAPHTHALIZED GAS TO STREET LAMPS.

Mr. Haywood, engineer to the Commissioners of Sewers for the city of London, presented the following report at a recent meeting of the commissioners:

To the Honorable the Commissioners of Sewers of the City of London:

Gentlemen,—I beg to report that, in pursuance of the resolution of the court, of the 23d of April last, I have directed an experiment, with the view of testing the value of the application to the public lamps of the process patented by the United Kingdom Carburating Gas Company.

The patent of this company is for placing near to the gas-burners a receptical containing coal-naphtha; the gas passing through, or over this, takes up, and becomes enriched by the addition of the volatile hydrocarbons contained in the naphtha, and the illuminating power of the gas is thereby increased. The quality of the naphtha employed determines mainly the degree of illuminating power gained, and the chemical and photometrical experiments laid before me show that it varies from 25 per cent. to 77 per cent.

The experiment being one in which the gas companies are much interested, I applied to the Chartered Company (who light Moorgate street), suggesting their co-operation in conducting it with me. The suggestion was at once acceded to, and their inspector, Mr. Johnson, was placed in communication with me for that purpose. Moorgate street was selected as well-adapted for the experiment, there being an equal number of lamps upon each side of the way, but one or two private lamps only in the street, and but few shops; the street is therefore, after an early hour of the evening, almost entirely without artificial light, excepting that which it derives from the public gas-lights,

The patentees stating that, by the application of their process, equal light would be given with half the ordinary consumption of gas, the burners were regulated accordingly.

The lamps experimented upon were twelve in number—six upon the western side, which were fitted with the ordinary batswing burners, calculated to consume, upon the average of the night, 5 cubic feet of gas per hour; and six upon the eastern side, fitted with batswing burners, calculated to consume 2½ cubic feet per hour; the latter burners having attached to them the carburating apparatus of the company. Each of the

twelve burners had a meter attached to it, to ascertain the actual consumption. No pressure regulators were fixed upon the lamps.

The registration commenced upon the 10th of June, and terminated on the 19th of July inst—the experiment extending, therefore, over thirty nights—and gave the following results:—That the burners without the carburating apparatus consumed about 4.39 cubic feet per hour. That the burners fitted up with the carburating apparatus consumed 2.09 cubic feet per hour.

No photometer was employed; the equalization of the amount of light given by the two classes of burners, was a matter of judgment. The district inspector of the commission, who saw the light nightly, reports his opinion that the light given was perfectly equal, and that his opinion is strengthened by collecting those of certain residents in the neighborhood. My own opinion is that the light of the 2½-feet burners was, upon the average of the month, inferior, although but very slightly so, to that of the 5-feet burners. The inspector of the Chartered Company coincides with me in this. No chemical analysis was made of the naphtha used, but it is stated by the patentees to have been of the best quality.

My deduction from the experment is, that with naphtha of equal quality to that used during the warm months of the year, 3 cubic feet of carburated gas may be considered as about equal to 5 cubic feet of gas not carburated.

Assuming this to be data applicable to all seasons of the year, I have estimated the saving to be effected by the process; and, after allowing for the cost of the apparatus, and for periodically filling it with naphtha, and after giving credit, at the present price of the gas supplied to the public lamps, for the quantity not consumed, it shows that the reduction in the cost of each public lamp will be at least 20s. per annum; and, there being 2,825 lamps within the city, that a saving of about £2,825 would be annually effected.

The only disadvantage observed during the experiment was, that the reservoir, as constructed, throws a disk of shadow round the base of the gas-lamp standard; but the depth of shadow is but slight. This disadvantage may be largely rectified by an alteration in the form of apparatus.

It should be understood that I do not pledge myself to any of these figures as exact, for the experiment, as conducted, cannot lay claim to be considered minute or exact in its character; but I believe it may, nevertheless, be taken as giving a close approximation to the truth. It is the mean of the rough results of practice, and the refined processes of the laboratory, from which reliable data are generally drawn. In this case the results of the experiment are supported by laboratory experiments, and, consequently, there seems but little doubt that this mode of applying naphtha to the public lights (for the naphthaization of gas itself is by no means new) may lead to a considerable reduction in the cost of public lighting; but what that reduction ultimately would be, would depend upon points which can only be determined by the application of the process to a considerable number of lamps for some length of time, and at different seasons.

INFLAMMABILITY OF PARAFFINE.

It will be remembered that a Mr. and Mrs. Stokes, of Paddington, lately lost their lives in consequence of the explosion of a paraffine lamp, into which, while it was being filled, Mrs. Stokes had accidentally dropped a lighted match. At the inquests upon the bodies a verdict of "Accidental death" was returned. Among the evidence, that of Dr. Odling, analytical chemist, of 6 Prince's place, Kennington road, was important. He produced a sample of what was described as the genuine paraffine oil, and also another sample of oil which it was asserted had been purchased for the deceased at a shop in Margaret Terrace, Paddington Green. The witness showed that the genuine oil would not ignite by the insertion of a lighted match, and could not possibly explode; but the other sample did explode. It was, no doubt, the cause of the explosion that the latter had been used. Dr. Odling experimented with a part of the explosive oil, which had been left untouched in the can, and an ordinary sample of the Paraffine Light Company's oil—first, by showing that the explosive substance gave off an explosive vapor in the ordinary temperature, whereas the latter oil did not; and, secondly, with lighted matches, set the explosive oil in a sheet of flame. The company's oil would burn only like a wick. He denied that the explosive substance was paraffine oil. It seemed a dangerous substitute, and to be a petroleum oil; its gravity was but about 794, but Young's patent paraffine oil was 820, making the oil that exploded to be twenty-six degrees lower than that of Young's. Mr. Woods, the retail vendor, was examined at some length. He had been made an agent of the Paraffine Light Company for the sale of their oil since 1859; during that time, however, he was pretty regularly supplied with oil manufactured by another party, from Messrs. Lamb & Palmer, of Old Broad street, as well as by the company. In a lengthened cross-examination by Mr. Johnson, on behalf of the Paraffine Oil Company, witness admitted that he did not believe the oil that exploded to be Young's patent, nor did he believe it to be Lamb & Palmer's. He considered both were excellent articles. He had purchased no oil whatever from the company since the 1st of May last, and had been supplied from that time by Lamb & Palmer, and if the exploded oil had been purchased of him, it was probably Lamb & Palmer's, which he called paraffine oil, but which was invoiced mineral oil. Mr. Horner, as the representative of Lamb & Palmer, said he was prepared to show that their oil and that of Young's were manufactured of the same material, and that they had never sent out oil at such low gravity as 794, but generally from 815 to 825. Mr. Johnson said the fact was, the Paraffine Light Company were the patentees of the paraffine oil, and no other oil was called by that name until after its introduction about five years ago. It now got into such general use that other people were induced to bring forward other oils and call them paraffine, although, perhaps, they were of a highly dangerous character. The Paraffine Light Company decidedly objected to any other oil but theirs being called paraffine. In connection with the above, a correspondent of the *Times* writes as follows:—"After the inquest had been held upon Mrs. Stokes, I obtained a sample of the oil remaining in the can from which the oil which had exploded had been taken, and found its gravity to be about 795. Upon the application of a lighted match it blazed up instantly, almost like gunpowder. From what material the oil was manufactured I cannot say; but it was of a rather dull color, and had much of the odor of a coal oil. At the same time I obtained a sample of oil of a similar character from the shop at which the oil used by Mrs. Stokes had been bought; but, in this instance, the gravity was 815. It lighted with difficulty when a strip of burning paper was held to it. Had the oil used by Mrs. Stokes been of the like gravity, the accident which terminated so fatally would, in all probability, have been avoided, even if the burning match had fallen into the oil. The explosion undoubtedly resulted from the light specific gravity of the oil employed; for at 795 all the paraffine, or mineral oils, from whatever material manufactured, are alike explosive and dangerous. On the other hand, all the paraffine or mineral oils, sold under various trade names, are perfectly safe to use at and above a gravity of 820; a light dropped into an open vessel of oil of that gravity would be extinguished instantly. Paraffine, or mineral oils, are manufactured in Great Britain from asphaltum, boghead mineral ,cannel and ordinary coals, bituminous schists, and other substances; and the oils produced therefrom by British manufacturers are, for the most part, of gravities exceeding 820, and are, therefore, perfectly safe. But large quantities of paraffine or mineral oils are imported and sold direct to the large dealers, and over those oils the British manufacturers cannot, of course, exercise any control. It is not to the interest of the British paraffine or mineral oil manufacturers to make oils of less gravity than 820, because a larger profit is obtained at and above that rate than below it. In an economic point of view, it is not to the interest of the consumer to use the lighter and explosive oils, because with good oil at 820, and above, an equal degree of light, combined with perfect safety, may be obtained at a less cost. The question will naturally arise, How are the consumers to be protected against the sale to them of explosive paraffine or mineral oil? The remedies are very much in their own hands. There is a small glass instrument called an oilometer, obtainable for a few shillings, by which purchasers may ascertain the gravity of the oils supplied to them as easily as they could read off the temperature of the atmosphere by an ordinary thermometer; those who will not incur the expense of such an instrument may insist upon being supplied by the retail dealers with oils of not less than 820 gravity; the retailers will act upon the large dealers, who will be obliged to certify to the gravity of the oils supplied by them; and it will be to the interest of the trade generally, and of the public also, that the light explosive oils should be kept out of the market.—*London Engineer.*

[The paraffine oil here spoken of is what is generally known in this country as kerosene, or coal oil.—Ed.]

CHARGE OF THE BRIGHT BRIGADE.

An Affair by Gas-Light.

BY ONE OF THE BRIGHT BRIGADIERS.

Round the room, round the room,
Round the room, onward,
Like a tee-totum,
Revolved the One Hundred.

Like a tee-totum
Revolved the one hundred,
For all were in order
And no one had blundered—
"Onward the Bright Brigade!"
"All around!" Palfrey said;
So round and round the room
Spun the One Hundred.

Round then, the Bright Brigade,
No one the least dismayed—
None—for the ladies knew
They never blundered;
Not their's to make reply,
Not their's to seem too shy,
Their's but round to fly,
So round and round the room
Whirled the One Hundred.

Mirrors to right of them,
Mirrors to left of them,
Mirrors in front of them,
Flowers unnumbered.
Lovely in rich array,
With eyes as bright as day,
Partners as gay as they,
Into that fair *melée*,
Rushed the One Hundred.

Rose all their arms so bare,
Flew all their skirts in air,
Sweeping those sitting there,
Whirling and spinning while
Lookers-on wondered;
Trod on and pushed along,
Some looking quite forlorn,
Some of their drapery shorn,
Till they had reached their chairs,
Spun the One Hundred.

Gas-lights to right of them,
Gas-lights to left of them,
Gas-lights above them,
By glass pendants sundered.
Laughing and blushing so,
At seats all rushing so,
Heated and out of breath,
And from that figure there,
Now all have reached a chair,
All that are really left,
Of that One Hundred.

When will the next begin?
Oh, that enchanting spin!
How old folks wondered.
How can they labor so?
Is that true pleasure? Oh
Lovely One Hundred!

A Purified Administration.—Mr. Lincoln has every reason to congratulate himself on the purity of his cabinet, because it is so thoroughly *Seward.*

THE AMERICAN GAS-LIGHT JOURNAL in published on the 1st and 15th of every month, and is the recognized official organ of

LIGHT, HEAT, WATER-SUPPLY AND SEWERAGE.

Its purpose is to ascertain and make known all new discoveries in the science and economical application of LIGHT, and promote thereby the interests of companies and consumers; to encourage and aid the introduction of PURE WATER from Lakes and Rivers into Towns and Cities, and to improve the system of SEWERAGE, VENTILATION, HEATING, and DRAINAGE everywhere.

THERE ARE 20,000 CITIES AND TOWNS IN THE UNITED STATES, CAPABLE OF SUPPORTING GAS-WORKS, WHILE THERE ARE NOT 400 GAS-WORKS IN OPERATION IN THE WHOLE COUNTRY!!!

TERMS—CASH IN ADVANCE.

SUBSCRIPTION—In the U. S. and British Provinces. $3 per annum.
ADVERTISEMENTS—According to position and space occupied. For particulars of which please address the Proprietor.
☞ Remittances by mail to be addressed to the proprietor,
JOHN B. MURRAY,
ROOMS of the AMERICAN GAS-LIGHT JOURNAL,
No. 39 Nassau st., cor. of Liberty st., opposite the Post-Office.
New York City.

AGENTS OF THE AMERICAN GAS-LIGHT JOURNAL.

FOREIGN.

Germany .....B. WESTERMAN & Co., of New York.
Great Britain....TRUBNER & Co., 60 Paternoster Row, London, where single copies may always be found,
Paris, France. .. { LE JOURNAL DE L'ECLAIRAGE AU GAZ, 25 Boulevard Poissonnière.

DOMESTIC.

V. HAROLD MYERS, No. 152 South Fourth st., Philadelphia.
The AMERICAN GAS-LIGHT JOURNAL can be purchased of all the newspaper and periodical dealers in the U. States and Canadas.

THE
AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 1ST AND 15TH OF EVERY MONTH.

PROPRIETOR, JOHN B. MURRAY. | EDITOR, C. ELTON BUCK.

TUESDAY, OCTOBER 1, 1861.

There are certain agitators in England who seem to delight in working themselves up into a periodical ferment, and any subject which is beyond their comprehension, they regard as a bagatelle, to be buffeted and kicked about to their hearts' content. They ventilate their unsought-for opinions upon every trivial occasion, and nothing seems to suit them better than to stir up feelings of discontent and alarm. Fortunately, their *penchant* for discord is beginning to be appreciated and to be estimated in its true light, and those against whom their foolish babbling is directed have learned to treat it with silent contempt, as the surest means of consigning it to oblivion. These gentlemen, however, have one quality which is worthy of a better cause. The pertinacity with which they cling to their opinions, and the perseverance with which they thrust them before the public, evinces a possession of energy which, directed in a proper course, might redound to their honor.

One subject which these doughty champions love to prate about is the direful calamity resulting from the use of coal gas, which, they say, contains untold-of quantities of sulphur, and we are gravely assured of its pernicious effects in all manners of ways. The old oil of vitriol controversy is again resuscitated, after having been put to rest by sound arguments years ago; and, still harping on the same string, these philosophers attempt to foist their opinions upon the popular mind and to create distrust and alarm. Under the marshalship of Dr. LETHEBY, assisted by the Rev. W. R. BOWDITCH—who has a very extensive axe to grind in the shape of his clay gas purifying patent—the whole pack take up the cry, and make such a furious clamor as would really alarm those who heard them, were it not generally known how groundless their assertions are, and how little entitled to credence on the score of disinterestedness. Were it not unpleasant to behold such perversions of talent, it would be highly amusing to witness the oft-repeated overthrows which these brimstone knights have met with in the arena of argument, and the unembarrassed manner in which they have picked themselves up to meet a like defeat at each recurring encounter. Indeed, they have been so often and so signally refuted, that, like eels when skinned, they become used to it and rather like it. We have no doubt but that Mr. BOWDITCH, in the innocence of his heart, believes that clay was especially made to be discovered and patented by him as a purifying agent, whereby sulphur, the favorite element of Lucifer, might be arrested.

Notwithstanding the utter fallacy of the arguments of these agitators, they exercise a very pernicious influence upon the public mind, and create alarms which are entirely groundless, but which, nevertheless, have some effect; as, for instance, in the case of the refusal of the trustees of the British Museum to light their buildings with gas, owing to the adverse opinions of the late Mr. BRAIDWOOD. The oft-repeated assertion of the books in the library of the Athenæum Club, in London, being damaged by "oil of vitriol" is nearly worn threadbare, and it is high time that some other instances were pointed out and adduced to prop up the weak utterances of this clique of alarmists.

We regret to see that a writer in the London *Chemical News* (we hope it is not the editor of that excellent serial) has taken the cue from the leading spirits in this foolish warfare, and makes a charge on gas companies in general, and the Commercial Gas Company of London and Mr. VERSMANN in particular. In the communication of this writer, which we publish elsewhere, and which appears as a review of Mr. VERSMANN's report to the directors of the Commercial Company, some strange assertions are made, and large figures are paraded to sustain the theory of the alarmists and to overthrow Mr. VERSMANN. Now, without desiring to endorse this gentleman in any manner, we fancy he will be able to sustain himself against such futile assaults as are contained in the article in question, which does not prove a single one of its assertions, except by adducing the results of experiments made by the writer himself. The public will desire to know on what grounds the results of the critic are to be received with more credence than those of the author of the report, and will scarcely be convinced of the fairness of the criticism while the *animus* of the writer is so plainly visible, and where the whole force of the remarks seem devoted to whitewash Mr. BOWDITCH's clay patent, which Mr. THOMPSON, years ago, declared to be worthless. We have before mentioned this circumstance, and referred to the controversy which ensued between Mr. THOMPSON and the reverend inventor at that time, in which the latter got decidedly the worst of the contest.

This oft-renewed outcry against coal gas, which is taken up by the class of philosophers we have spoken of when other excitable subjects are scarce, is sustained by pretexts entirely too flimsey to conceal the true design of the agitators. Wishing to arouse a public prejudice against gas companies on the one hand, and to speculate in worthless patent schemes on the other, truth is not even aimed at in their assertions. The most unfounded statements are made; and although no proofs of their dicta are forthcoming, they still continue to ventilate their opinions, and to obtrude them before the public in the hope of gaining adherents enough to make them formidable.

SANITARY PROPERTIES OF CHARCOAL.

The phenomena connected with the absorption of various gases, which property charcoal possesses in an eminent degree, afford an inviting subject of investigation. While sanitary commissions have consumed much time and labor, and have been profuse in their expenditures of money in their search for disinfectants and deodorizers, they have in many instances ignored the value of charcoal altogether, and gone off in quest of more expensive substances, which do not possess a tithe of the efficacy which is one of its characteristics. The cheapness of this substance, the ease with which it may be employed, together with other considerations, render it one of the most useful agents for sanitary purposes known.

Even among scientific men, grave misapprehensions have existed as to the precise action of charcoal in contact with inanimate organic bodies. Many have erroneously supposed it to possess antiseptic properties, and have recommended its employment as an arrester of decay. It is true that the offensive odors arising from animal remains undergoing putrefaction are at once neutralized by the addition of charcoal in a state of powder. But this action is not owing to any antiseptic property, but to the power of absorption which the charcoal possesses, and of concentrating within its pores the noxious effluvia, and thus removing all offensive odors from the remains subjected to its contact. That charcoal does not possess antiseptic properties may be easily proved by surrounding a piece of flesh with the powder; on examination after a lapse of a few weeks, putrefaction will be found to have ensued, and an advanced stage of decomposition reached.

The power of absorbing and concentrating gases within its pores is possessed by charcoal to a wonderful extent. One volume of it will absorb ninety volumes of ammoniacal gas, which is the maximum of its absorbent power—the minimum being hydrogen gas, of which it absorbs one and seven-tenths volumes. The amount of oxygen gas absorbed is equal to nine and two-tenths volumes. For a long time this peculiar absorbent power was thought to be the extent of the action of charcoal—or, rather, that the action ended when the saturating proportion of the substance to the particular gas submitted to its operation was reached. The recent investigations of Dr. STENHOUSE, a celebrated English chemist, have thrown much additional light on this subject, and invested it with an interest which before was not attached to it. From the results of his experiments he has demonstrated that the absorptive action of charcoal is not a mere passive reception of gases into its pores, but it exerts a peculiar power in inducing actual combustion of carbonaceous substances, by furnishing the quantity of oxygen necessary to this combustion, which it had previously absorbed. In other words, according to Dr. STENHOUSE's theory, charcoal actually possesses the power of burning up organic substances at ordinary temperatures, and of resolving them into their ultimate products. This combustion of course proceeds moderately, and consumes far more time than if the substance had been burned by fire, but the effect is the same, and the same ultimate products are generated in both instances. This can be proved in a very satisfactory manner. A piece of flesh placed in a glass vessel and covered with powdered charcoal, and allowed to repose, will soon experience the effects of combustion induced by the charcoal, and the fact of the combustion of the noxious gases may be proved by exposing the usual test for ammonia—hydrochloric acid—near the charcoal in use, when the white fumes which will arise afford an ample evidence of the complete consumption of the gases, which, but for the useful properties of charcoal, would be evolved in their normal state, and emit a disgusting stench. The action which takes place is very simple. The gases which are evolved by putrefaction are mainly compounds of carbon, hydrogen, and nitrogen, although phosphorus and sulphur are also present, but to a limited degree. These gases passing through the charcoal in the pores of which oxygen is absorbed, are oxidized or consumed, and the chief products arising from this new action are carbonic acid, water, and ammonia—the ultimate products of the combustion of animal remains.

The investigations of Dr. STENHOUSE have proved of some importance in a sanitary point of view, and have pointed to the use of charcoal in various ways for the purpose of preventing infection and contagion. Respirators filled with this substance are now worn in hospitals, so contrived as to protect the wearer from noxious exhalations. Filters for atmospheric air in unwholesome and crowded districts have also been constructed, in which the injurious gases and vapors are retained and consumed, and only pure air, with a slight admixture of the ultimate products of the combustion of impurities, is allowed to pass. A dwelling may thus be

protected from malaria by causing the apertures through which air is admitted to be supplied with charcoal filters, when all deleterious gases will be arrested, and pure air, separated from its contaminations, will be freely admitted.

The principal cities of Europe have expended much money in appointing sanitary commissions to report upon the disinfection and deodorization of sewerage. Many chemicals have been experimented with—some of them being expensive, and themselves giving rise to unpleasant odors. If charcoal will do all that Dr. Stenhouse claims for it, it is indeed a valuable agent in the hands of health committees; and towns and cities on this side of the Atlantic, although not reeking with the accumulated filth of centuries, as is the case in Europe, will find for it plenty of employment.

Effects of the War on the Gas and Water Interests.—No interests have suffered less by reason of the civil war than those represented in the columns of this Journal. Gas and Water cannot be very well dispensed with by rebels or loyalists, so that in no case has damage happened to the works of either. The heaviest decline in receipts at any gas works from this war, has been ten per cent., and this is more than made good by the cheapness of coals. Prices of gas stocks have not varied five per cent. on account of the war—we mean the public war—a little private war that we have heard of has knocked down a certain gas stock from 140 to near par, so it is said. Business generally is reviving, and we hear of capital—a plenty of it—ready for investment in new works. A friend of ours has $200,000 ready to build new gas-works with, but not for competition. They must be regular.

Mr. Alfred King's Cubic Foot Measure.—We have been remiss in not acknowledging, before this, publicly, the receipt of a very interesting communication from Mr. Alfred King, of Liverpool, on the subject of his Cubic Foot Measure, together with elaborate drawings, which we will present to our readers in due time. As soon as the war "lets up" a little, we hope to make our columns much more interesting, and we now repeat our pressing invitation to all who are so disposed, to favor us with communications, and explanatory drawings when convenient. All will be published in time.

Water-Gas at Marlboro', Mass.—A private letter from a party interested in these works says: "At Marlboro', the gas-works continue to give satisfaction, and notwithstanding the high price of rosin exceeds but little one dollar per 1,000 feet. With crude coal-oil now being used, it comes within the mark. The usual run of the works have been 200 lbs. coal, 107 lbs. rosin, 40 cents for charcoal. One retort, 7½ hours, 3,358 feet of gas."

It must be distinctly understood, that in our notice of water-gas on page 72, *and in all other notices of it, we simply repeat the statements of others, without committing the* Journal *to it in the least.*

The Water-Works of Great Britain.—On another page will be found a complete list of the British Water-Works, the details of which, as furnished us by the companies, will be published from time to time. The list of Water-Meters in use there is rather interesting than otherwise.

To Advertisers—Foreign and Domestic.—The marked and general improvement in all branches of business has given a renewed impetus to advertising. Advertisers will oblige us by sending in their favors as early as possible to avail of the winter and spring business. The industry of the country is now fairly aroused, and the demand for light and water extensive throughout the country, and the manufacturers of the varied apparatus are hard at work again.

Notice to Subscribers in Great Britain.—British subscribers can procure this Journal only of Messrs. Trubner & Co., No. 60 Paternoster Row, London, at 15s. per annum, *payable in advance.* Messrs. Trubner & Co. are our sole agents in Great Britain. They will also receive orders for advertisements.

£—— REWARD, AND NO QUESTIONS ASKED.

The following rare communication was received by the last steamer from England, "with the compliments of the London *Journal of Gas Lighting*," from which we infer that the editor wishes it inserted in this Journal.

The author of the paper has doubtless escaped to America and probaly entered the Confederate army, whither we shall send our reporter to hunt him up at the next battle. If found, he will be forwarded to No. 42, and the reward claimed in lieu of a specific charge for inserting this notice. The author will find out sooner or later that he had better mind his P's and Q's.

[*The writer of the following* jeu d'esprit *would oblige the Editor of the* Journal of Gas Lighting *by communicating his name and address.*]

A MOUNTAIN IN LABOR.

Sir,—A curious accident places me in a position to give you some information respecting the meeting called by Mr. Hughes, at the office of Messrs. Marriott & Jordan, for the purpose of organizing an association "to counteract the debasing influence now exercised by a certain Journal;" and, as you do not appear to have received an invitation to be present, the account I am thus enabled to furnish may have some interest for you.

Sauntering up Parliament street, in the afternoon of Tuesday, the 25th ult., I followed a moustached gentleman in a velvet-collared blue coat, yellow gloves, and varnished boots, as smart as a *prima donna* just shot out of a band-box, who dropped a paper which, on being picked up, was found to be a wrapper used by a celebrated Banbury cake-maker, on the back of which was pencilled in a delicate handwriting (which might have been mistaken for that of a lady) the following memoranda:

"At a meeting called to promote the formation of an Association for the establishment of a weekly magazine to be devoted to Gas, Water, and Sanitary subjects.

"Present,

"T. A. Headless, Esq., A.I.C.E., &c., &c., &c.

"Mr. Headless, after waiting one hour in the hope that some other gentleman might respond to the notice, expressed his regret that the attendance should be so scanty; but, as he fully approved of the purpose for which the meeting was called, having himself been shamefully ill-treated by the Journal in question, he was prepared to subscribe £—— towards the limited joint-stock fund, on condition that he was appointed editor of the projected magazine; whereupon the proceedings were adjourned *sine die.*

"Mem.—Do not forget to call at No. 42, to inform the people there that Mr. Hedley has been engaged in conducting some important experiments at the Uxbridge Gas Works, the details of which will be given in evidence on the Wood Street fire trial, and that he has proved to the satisfaction of the most eminent scientific celebrities of the day, that gas will pass through a hole in a brick wall, although the hole be filled with a porous material (!) Get their opinion as to what he should charge for this discovery, and ask them to notice it.

"Mem. 2.—Inquire about the probable dividend on the debt of the Marylebone Gas Consumers Company, and when payable."

Fearing that the writer may have forgotten to call at No. 42, I trust you will do him the justice which he claims at your hands.

Q in the corner.

Great Scotland Yard, July 1, 1861.

Chandeliers for the Armory of the 69th Regiment.—We understand that Messrs. Mitchell, Vance & Co. have just finished four twelve-light chandeliers for the armory of the patriotic 69th (Irish) Regiment. The chandeliers are of bronze and gilt, and will fully sustain the reputation of the well-known firm who manufactured them.

East New York, N. Y.—Mr. Stephen Scammon breaks ground to-day for a gas-works at this place. He will have about one hundred consumers to start with.

Hornellsville, N. Y.—This village, situated in Steuben county, was lighted with gas for the first time on Tuesday evening, August 27th. The event was duly celebrated by the residents of the place.

ANSWERS TO CORRESPONDENTS.

J. B. T., of N. Y.—*We know of many gas-works of moderate size which are managed by men who knew nothing of the business before assuming their positions, and who manage them well. Still, we have always expressed our opinion that a manager ought to be pretty well educated to his business, and to understand the theory as well as the practice of gas-making.*

L. J. E., of Vt.—*We do not see how the ascension pipes can become clogged if care is taken to clean them every time the retorts are opened. There must have been some inattention on the part of the stokers.*

A. B., of Pa.—*M. Penot suggested sulphate of lead some years ago for the purpose of removing sulphuretted hydrogen from gas. It can only be profitably employed in the immediate vicinity of dye-works, or where an abundance of the salt is easily procured. It is very little, if ever, used.*

H. E. B., of Ohio.—*Cyanogen is a compound of nitrogen and carbon. It is an inflammable gas, burning with a beautiful peach-blossom colored flame. Its formula is* $C_2 N$.

F. E. L., of Ky.—*The Bunsen photometer is generally used by gas companies. It is regarded the most reliable instrument for measuring light. The Rumford, or shadow test, is seldom used.*

R. S. P., of Ind.—*We would like to see the report, and if you have a copy to spare, would like you to send it on.*

O. H. P., of N. Y.—*The effect you notice is altogether owing to a great portion of the pressure being removed. In the day time it is often scarcely sufficient to give a steady flame.*

Retort, of Md.—*We cannot tell. The whole affair is being kept a profound secret; and we doubt if any one, except the directors of the company, know the first thing about it. We are promised developments one of these days, when we will notify you.*

W. L. D., of Mass.—*According to some authorities the melting point of cast-iron is 2,786° Fahrenheit. It is but a few degrees above a "brilliant white" heat.*

J. T., of N. Y.—*The works were built for rosin, but have been altered into coal-gas works.*

A. R. T., of Del.—*Although the results were prejudicial to the new process, yet could hardly be considered a fair trial. The apparatus used was old and defective, and the entire paraphernalia was worn out. It ought never to have been tried there.*

W. H. B. of Me.—*There is no book such as you want. Clegg and Peckston are the best authors on gas. A concise and well written book is much needed on this subject, and we hope the deficiency will soon be supplied.*

Engineer, of C. W.—*We have a very high opinion of Bower's Glycerin for wet meters. It will remain fluid in any degree of cold to which it may be exposed in your latitude.*

W. H. D., of N. J.—*Ellerman's disinfecting fluid is a mixture of per chloride of iron with pyrolignate of the sesquioxide of iron. It is effective, but expensive; and when used in quantities large enough to effect sewerage disinfection, would cost a large amount, in comparison with other substances for the same purpose.*

Guayaquil, S. A.—We were favored lately with a visit from E. R. Sprague, Esq., late of Baltimore, Md., who has just built a gas-works at Guayaquil under the name of the "Baltimore Gas-Light Co. of Guayaquil." It was lighted up for the first time January 1st, 1861, capital $150,000; shares $1,000 each; dividend days January and July; population 22,000; consumers 200: public lamps none, as yet; price of gas $10 Ecuador currency.* Newcastle coals used. President, E. R. Sprague; Secretary, L. V. Prevost; Engineer ——— French.

Mr. Sprague is Massachusetts born, but raised at the South; is full of energy and vigor, and will wake up the whole Ecuador in a short time. He sailed last week for his new home, where we wish him, and predict for him, all success.

* About $ 7.30 U. S. currency.

Gwynne's Carbonizer.—Parties interested are referred to the advertisement of the Carbonized-Gas Company in this number. The apparatus is attached to our gas-lights and can be seen at any time.

Gwynne's Water-Gas Apparatus.—This process is advertised in the Journal of to-day, and we refer parties wishing to examine into it to the Company's office, where it can be found in operation. Mr. Gwynne speaks very confidently of its results. Our next number will contain an engraving and description of it.

INSTITUTION OF CIVIL ENGINEERS OF ENGLAND.

The Council of the Institution of Civil Engineers have issued a circular inviting communications on a number of subjects, for which premiums will be awarded. The pecuniary awards to be made will not exceed in each case twenty-five guineas (about $125,) in addition to the honorary premiums. All of these subjects are of great practical importance, and some of them relating to the specialities of this JOURNAL, we present a list of them. Should any of our readers wish to compete for the premiums, if they will send their essays to us, we will forward them to their destination in our regular package of European correspondence, and thus ensure their safe transmission. The following are among the subjects of special interest:

On the effect of Engineering Works in causing injurious Scour, Flooding, or Silting-up, in Tidal Estuaries, or Rivers.

The construction of Lighthouses, their Machinery and Lighting Apparatus; with notices of the methods in use for distinguishing the different Lights.

The results of a series of observations on the Flow of Water from the Ground, in any large district; with accurately-recorded Rain-Gauge Registries, in the same locality, for a period of not less than twelve months.

On the Construction of Catch-water Reservoirs in Mountain Districts, for the supply of Towns, or for manufacturing purposes.

Accounts of existing Water-works; showing the methods of supply, the distribution throughout the streets of towns, and the general practical results. (Twenty-five guineas.)

The comparative Duty performed by, and improvements in the construction of, modern Pumping Engines for raising Water, for the supply of Towns, or for the Drainage of Mines; noticing in the latter case, the depth and length of the underground workings, the height of the surface above the sea, the geological formation, the contiguity of streams, &c.

The Results of the use of Bucket and Rotary Pumps, for lifting large quantities of water to a limited height, as at the Haarlem Meer, or at Whittlesea Mere, or for the purpose of Irrigation; with descriptions of the Machinery employed, and the application of such Machinery to the raising of the sewage of large towns.

The Drainage and Sewerage of large Towns; exemplified by accounts of the systems at present pursued, with regard to the level and position of the outfall, the form, dimensions, and material of the sewers, the prevention of emanations from them, the arrangements for connecting the house drains with the public sewers, and the disposal of the sewage, whether in a liquid form, as irrigation, or in a solid form after deodorization.

On the Means of Rendering large supplies of Water available for the purpose of Extinguishing Fires, and the best application of Power to the Working of Fire Engines.

On the means of Utilizing the products of the Distillation of Coal, so as to make Coke commercially as cheap as Coal; with descriptions of the Ovens, and of the best processes used in Great Britain and on the Continent, in the manufacture of Coke.

The Precautions to be adopted for guarding against Accidents by Fire-damp and After-damp in Mines.

The Chemical Analysis, and the application to economic purposes, of the Gases generated in Iron Blast Furnaces.

The communications should be written in the impersonal pronoun, and be legibly transcribed on foolscap paper, about thirteen inches by eight inches, the lines being about three-quarters of an inch apart, on the one side only, leaving a margin of one inch and a half in width on the left side, in order that the sheets may be bound.

The drawings should be on mounted paper, and with as many details as may be necessary to illustrate the subject, and should be to such a scale that they may be clearly visible, when suspended on the walls of the Theatre of the Institution, at the time of reading the communication, or enlarged diagrams may be sent for the illustration of any particular portions.

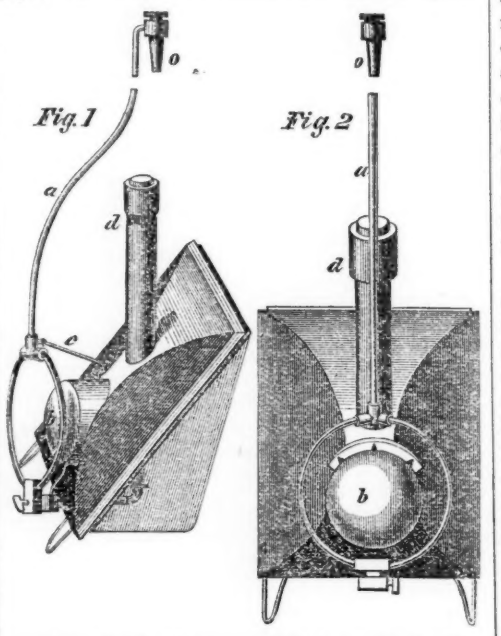
Reduced drawings for the illustrative plates and woodcuts will be required, as soon as the papers are accepted.

Papers which have been read at the meetings of other scientific societies, or have been published in any form, cannot be read at a meeting of the Institution, nor be admitted to competition for the premiums.

OUTSIDE LAMPS FOR STORE WINDOWS.

The heat generated by gas-lights in the small space of a store window being injurious to some descriptions of goods, numerous contrivances have been resorted to, to effect a different arrangement, whereby the lamps could be removed outside, and, by a suitable arrangement of reflectors, the light might be projected upon the goods displayed. The accompanying woodcuts represent an improvement in outside lanterns, patented in England by J. Clark, of London.

Fig. 1 is a side view of the gas-pipe with the lamp attached, and Fig. 2 is a back view of the same. The general appearance of this arrangement is somewhat similar to those in use, with the exception that the pipe expands into a ring through which the light is reflected, by means of a lens, on the pavement or street in front. In the figures, *a a* represent the gas-pipe; *b* the lens; *c* is a brace hooked to the lamp and



gas-pipe; *d* is the chimney, which is provided with a fluted cap of the shape of an inverted cone, with apertures beneath for supplying the interior of the lamp with the requisite amount of atmospheric air. This cap acts at the same time as a preventive of wind and rain from entering the lantern. The lantern is supported on the gas-arm or elbow by pins or legs dropping into holes in a boss formed on the elbow. The light from the burner, when turned at a proper height, is about the centre of the lens *b*.

NEW YORK STATE GAS-LIGHT ASSOCIATION.—At a special meeting held at the rooms of the Association, cor. Irving place and 15th street, on Thursday, Sept. 19th, 1861, O. G. Steele, Esq., in the chair, the following officers were elected for the ensuing year:

CHARLES ROOME, President.
ROBERT NICHOLS, Vice-President.
T. W. PARMELE, Secretary.

Executive Committee.

E. W. LEAVENWORTH,	Syracuse	Gas-Light	Co.
O. G. STEELE,	Buffalo	"	"
J. H. ADAMS,	New York	"	"
B. C. HUMPHREY,	Albany	"	"
T. H. CORNELL,	Yonkers	"	"

SALUBRITY OF WATER RESERVOIRS.—M. Coste, of Paris, has discovered that water reservoirs, in order to preserve their contents wholesome, ought to be protected against heat and light. He found that the exposed reservoir killed all his young fishes. We wish it would do the same at Fairmount.—*Journal of Franklin Institute*

ON THE NATURE AND CHEMICAL PROPERTIES OF COAL-GAS.

Considered with respect to its Economical and Sanitary Application for the Purposes of Generating Light and Heat.

BY LEWIS THOMPSON, ESQ., M. R. C. S., &c.

(*Concluded from page* 91.)

It is well known that carbonic acid has the effect of greatly diminishing the luminosity of coal-gas; and, therefore, it seemed to me requisite that a few experiments were needed for the purpose of proving the extent of this evil. I accordingly consumed, in a suitable apparatus, a quantity of coal-gas contaminated with one per cent. of carbonic acid, and contrasted this, light for light, with the result obtained from the same gas when purified. The impure gas burnt 46¾ minutes, the pure gas 52 minutes; and it was afterwards found that to obtain an equal amount of light it required 111 measures of the impure, and but 100 of the pure gas. The public has a right, therefore, to demand that coal-gas shall be free from carbonic acid; and this is easily tested by blowing a little of the suspected gas through lime water for a few minutes; the lime water ought not to become milky or turbid.

When free from carbonic acid (and I am bound to confess that its presence is an exception to the general rule) coal-gas will certainly be found by far the least obnoxious form of illumination yet discovered, as well as the cheapest. But I shall be told, in spite of my experiments, that the daily experience of the million is directly opposed to my conclusions, and that gas does require more ventilation, and does generate more inconvenience and atmospheric deterioration than candles or lamps; in short, that everybody knows and feels it; that everybody says so, and "what everybody says, must be true."

Now, without the slightest wish to controvert so extensive an authority, I will merely proceed to show that this general assertion in no way militates against my facts. I have proved, as clearly as anything short of positive experiment can do, that with any given amount of light a person could live in a confined room lighted by gas longer than in one similarly lighted with colza oil in the proportion of 98 to 71, or with cannel-gas in the proportion of 152 to 71; but this holds good only so long as the amount of light is equal from both of the luminiferous agents; for, if this becomes altered, the argument is no longer tenable.

Thus, if with common gas the light be made double of from the colza oil, then the proportion will be 98-2 to 71, or as 71 to 49, in favor of the oil; and this extremely unfair view of the subject has, most undoubtedly, given rise to much of the present prejudice against gas. Without taking into consideration the fact that twice or thrice the amount of light was being emitted from the gas, the public mind has been directed to the greater heat and difficulty of respiration caused by the use of gas over that formerly experienced with lamps or candles. But would any one now be listened to who ventured to argue that the expense of travelling by railways exceeds that of the old mail-coach, because, for a given amount of time, the money paid is greater by the first than by the last, the distance travelled forming no part of the calculation? Nevertheless, this is precisely the kind of accusation brought against gas. A tradesman hitherto content with an amount of light equal, perhaps, to 16 sperm candles, suddenly becomes disgusted with the expense, the annoyance, and, withal, the uncertainty in effect of his oil-lamps; he accordingly sends for a gas-fitter, and, knowing nothing about the quantity of light he has hitherto employed, he orders gas to be laid on at about the same cost per quarter. The result is, that instead of a 16-candle illumination, he has now, probably, reversed the figure, and got 61. He is, however, delighted with the change, and would never think of going back to the filthy oil; "but there is one drawback; he finds his shop much closer and hotter than with the oil;" consequently, he draws the conclusion that there is some impurity (he thinks sulphur) in the gas; yet it never occurs to him to try whether, with four times the number of lamps he formerly used, his inconveniences would be less than with gas.

Again it happens that most of the rooms in our large towns have been built of such a height and cubical contents, as unfits them for almost any form of sanitary illumination beyond that of a rushlight.

Take, for instance, an apartment (and there are many much smaller) of about 12 feet square, and 10 feet high, having, in fact, a cubical content of 1,440 feet; this content being diminished to not more than 1,000 cubical feet by furniture, and the presence of four human beings. Let it next be assumed, for the sake of argument, that, unlike the unhappy occupants of the Black Hole at Calcutta, these four persons do not contaminate the air of their appartment, but that an Argand gas-burner, consuming 5 cubic feet of gas per hour, is introduced. The question arises, how long would this appartment be fit for the healthy respiration of its occupants?

It has been proved that air containing one per cent. of carbonic acid is unfit for human beings to respire, and that 1-500th part cannot be safely exceeded for more than short intervals; and as coal-gas produces, when burnt, very nearly its own bulk of carbonic acid, we see at once, that in half an hour the Argand burner in question would contaminate the air of the above apartment beyond the point of salubrity, and this, too, altogether independent of the carbonic acid exhaled from the lungs of the four inmates. Yet gas is not unfrequently introduced into such places without the slightest additional means of ventilation being thought of, and, but for the fortunate inconvenience arising from the heat, which soon necessitates an alteration, I have no doubt that many persons would have suffocated themselves by ignorantly consuming gas, as has too often happened with charcoal stoves.

In alluding to the heat which arises from the use of gas, I may as well, in this place, correct a very popular error upon this head. Most people imagine that gas gives rise to more heat than lamps or candles, whereas, in reality, they give much more. But in this, as in all other cases of comparison, regard must of course be had to an equality of light. For example, it would be but a sorry argument to contrast the heat of a single candle with that of an Argand gas-burner giving the light of 13 candles. If, however, the experiment be fairly conducted by burning 13 candles against such an Argand burner, it will be found, as I have stated, that the maximun of heat is produced by the candles, and not by the gas. For the purpose of giving a definite expression to the relative calorific powers of different luminiferous agents, I instituted a set of experiments based upon a photometrical standard, in which the light was made equal to that of one sperm candle, burning at the rate of 120 grains per hour, and each experiment lasted one hour. Thus circumstanced, the following table exhibits the amount of water raised from 60° to 212° Fahrenheit, by each agent, and consequently indicates their relative heating influences:

Cannel gas	raised	4,074	grains of	water	152° F.
Common gas	"	6,840	"	"	"
Sperm candle	"	7,305	"	"	"
Tallow mould candle	"	7,534	"	"	"
Colza oil	"	7,870	"	"	"

The impossibility of maintaining one uniform rate of consumption in the case of the candles and oil, detracts slightly from the value of the above results; but the indications are too decisive to permit this general conclusion to be doubted—that, light for light, the inconvenience arising from heat is much less with gas than with any of the ordinary agents employed to give light; and in the case of cannel gas the advantage is very great.

Now, the origin of the popular error connected with this subject is one which demands a little attention from its connection with the economical use of gas in private houses, for though no person at present doubts the fact that, where a considerable amount of light is required, gas is infinitely cheaper than any thing else, yet, strangely enough, it would appear that where but little light is needed, gas is not cheaper.

This arises from the difficulty hitherto experienced in bringing the light from a gas-burner into the same convenient locality as that to which a lamp or candle may be applied. Something seems still wanting in this respect to reconcile the use of gas to the exigencies of the poor; for, as the effect of light diminishes in proportion to the square of the distance, it is clear that a single candle placed at two feet from any object will illuminate that object as strongly as 13 candles, or a gas-light equal to 13 candles would do if placed at a distance of rather more than seven feet. Thus we see the advantage of position which the common candle possesses, and which compels the public to consume, as a general rule, thirteen times as much gas, and so generate thirteen times as much expense, heat, and inconvenience, as would be incurred did we possess facilities for bringing the gas we burn into the same advantageous proximity as the candle. And the above fact requires also to be kept in mind by those who would substitute gas-light for any other in common use. If, for instance, a person has been accustomed to read a newspaper in a particular part of the room, by means of a candle placed at any given distance from the paper, the question arises how much light ought to be emitted from a gas-burner about to be placed in the middle of the room, or at some assigned distance, so that the individual may still retain his favorite position, and have the same amount of light as before.

Thus, taking the preceding example, let it be assumed that a candle placed at a distance of two feet has been found sufficient, the question is, what amount of light must be given off by an Argand gas-burner situated in the middle of the room, at a distance of 10 feet? Squaring the two numbers we have 2 x 2=4 and 10 x 10=100, which is 4 to 100, or 1-25; therefore the gas-burner, in this case, would require to emit a light equal to 25 candles, in order that the same amount of illumination should ensue. This fact has not, I fear, been sufficiently understood or insisted on in the application of gas, nor have we, that I know of, any means of bringing the light of gas nearer to the point of action. The vulcanized India-rubber tubing is convenient, but possesses the very great disadvantage of losing its elasticity by the prolonged use of gas through it, so that it is apt to crack and give rise to a leakage; at the same time there is no subject connected with the economical employment of gas, which requires to be more carefully investigated than this question of proximity, nor one which would more amply remunerate an inventor.

In respect to the actual cheapness of gas in comparison with lamps and candles, but little need be said, as this is now universally admitted, even by the most prejudiced; nevertheless, it may not be amiss here to introduce, in a tabular form, the relative proportion which the more ordinary light-giving materials bear towards 1,000 cubic feet of what is called common or 13-candle coal-gas, without introducing the element of cost at all. Tried by the photometer,

1,000 cubic feet of common gas
were found equal to the light of 312,000 grains, or 44 4-7 lb. of sperm candles.
" " " 341,750 grains, or 48 6-7 lb. of carefully snuffed wax candles.
" " " 358,000 grains, or 51 1-7 lb. of stearic acid candles.
" " " 370,540 grains, or 52 9-10 lb. of best mould candles.
" " " 381,000 grains, or 54 3-7 lb. of best dip candles.
" " " 417,220 grains, or 6⅔ gallons of purified colza oil, sp. gr. 915.
" " " 366,310 grains, or 5 9-10 gallons of sperm oil, sp. gr. 888.

To use this table in a monetary point of view it is only necessary to contrast the price paid for 1,000 cubic feet of gas (from 4s. to 5s.), and that charged for the quantity of any one of the other materials placed opposite to it. Thus, suppose the gas at 4s. 6d. per 1,000, and dip candles at 7d. per pound, then the relative cost of light by these agents is as 4s. 6d. to £1, 10s. 10d., and so on for the rest. From the preceding facts, I think it will be admitted by every candid inquirer that, in point of safety, salubrity, and economy, coal-gas not only rivals, but greatly excels every other form of illumination yet within the reach of the public; and I know of no reason, unless ignorance and prejudice may be dignified by the title, why gas should not be employed in all our small towns, and even villages.

In the moral, as well as the physical world, the first mandate is equally applicable—"Let there be light," and not only darkness but vice will be diminished.

After having commented upon the comparatively small amount of heat generated by the combustion of coal-gas as an agent of illumination, it may seem singular that I should now proceed to speak of its value as a source of heat or caloric.

But the circumstances of my first argument were based upon a limited standard of photometrical power, and confined to a simple comparison with other substances specifically described; whereas, my present inquiry bears altogether upon a calorific standard, and goes no further than to a partial comparison with one kind of fuel. In short, what I wish to convey is, that for some temporary purposes, gas, at the present London prices, is cheaper than coal as a fuel; but by this I in no way advance the general proposition that gas, as fuel, is cheaper than coal as fuel, for that is true only under some peculiar circumstances, which I will now endeavor to point out.

Thus, where a fire is needed hastily, and for a temporary purpose, gas will always be cheaper than coals, as in heating water for a bath, or in small culinary operations; again, where a moderate fire of great uniformity is required to be maintained for many hours, or days, the cost of gas will be less than the mere extra cost of attendance with coals, and the same thing holds good in many other cases.

Foreseeing that questions of this kind must one day force themselves upon public attention, I have made many experiments of a practical kind, in order that some fixed data may exist, to constitute, as it were, the nucleus of future and more valuable results. My mode of proceeding has been to determine how much it costs to raise a gallon of water, contained in a copper kettle, to the boiling point, by means of a recently lighted fire in the one case, and by means of a small gas stove in the other. The average result of thirty-six experiments, with each of these sources of heat, has been as follows:

	Coal used.	Wood used.	Time employed.	Total cost.
With fire..	4½ lb.	1-5 of 1 d.	1 hour.	77-100 of 1 d.
With gas .	4 cubic feet, at 4s. 6d. per 1000.		20 minutes.	75-100 of 1 d.

So that there is an economy in price of nearly three per cent., and a saving in time of two-thirds, by the use of gas, to say nothing of the cleanliness and comfort thus secured.

When a common grate is provided with perforated bars put into communication with a service pipe, it is easy to obtain, in a few minutes, not only the appearance, but the substantial realities of a good English fire. Thus, if we fill the grate with pieces of the common proxide of manganese, of various sizes, these, upon lighting the gas in the grate, will speedily become incandescent, and, from their high radiating power, diffuse an agreeable warmth into the surrounding air, whilst, at the same time, they take on very much of the appearance presented by burning cinders in an ordinary fire.

Many other bodies possess this power, and have, accordingly, been patented for the production by gas of what is called "Englishman's fireside."

For example, pumice-stone, asbestus, and fire-brick, have been thus secured, and more recently metallic platinum has been included in a late patent, known as the polytechnic fire.

Being a metallic substance, and practically indestructible, platinum possesses, in an eminent degree, the properties needed for the purpose in question, and nothing but its great cost offers an impediment to its use. I have, nevertheless, seen it practically employed by Mr. Defries in the way alluded to, and certainly with the most complete success, both as regards appearance, and the comforts of warmth and thorough ventilation. Indeed, in the latter particular, there is nothing left to be desired; and although the present price of gas is such as to limit its use, in a calorific sense, to specific purposes, yet there is not that extra cost incurred which would preclude it from competing with coal, and still less with charcoal, in the case of picture galleries, and other similar situations, where the expense of clearing away dust, and the damage thus caused, are objects of importance. To obtain a perfect estimate of the relative money values of gas and coal as calorific agents, we must begin by taking a comprehensive view of the contingencies inseparably

attached to both, and, perhaps, when the expense and inconveniences arising from soot, smoke, and ashes, are added to the cost of the coal in the shape of labor for cleaning rooms, furniture, and chimnies, together with the damage thus created, we shall find no great reason for concluding that the general use of gas, as a heating agent, is either an impossible or improbable event in the progressive march of real civilization. As the last forty years has seen it rapidly supersede every other form of illumination, so may the next forty witness its adoption for heating and ventilating our apartments.

The very creditable state of development which the gas-fitters' art has reached, renders it unnecessary for me to offer many remarks to the general reader on this subject. In fact, it would scarcely be possible to convey any really useful information upon such a matter to the public at large. Specific rules could only suit specific circumstances, and the advice adapted for one locality might prove worthless, or even injurious to another.

With common gas, one kind of burners and glasses may be needed, whilst with cannel-gas, both would require to be changed. These things are, however, very well understood by the trade, and no person need apprehend being much led astray by the advice he will receive from respectable tradesmen of this class. The meter, indeed, is a kind of universal enigma, and has, therefore, become an object of general suspicion (from the apparently unintelligible nature of its indications). In reality, these are extremely simple, more especially to persons conversant with decimal fractions, and I would here have introduced a few explanations respecting them, had not this been already done in the most lucid manner by Mr. J. O. N. Rutter, of Brighton, to whose admirable little treatise on the "Advantages of Gas in Private Houses," I respectfully refer my readers for much valuable information on this and other matters connected with the use of gas.

JAMESTOWN, N. Y.—We understand that Jamestown, Chautauqua county, N. Y., is about being lighted with gas. The works are nearly completed.

PATENTS.

UNITED STATES.

2,136.—John S. Gwynn, of Plainfield, N. J., for an Improvement in Stamps:

I claim the suspended pawl or click fastening in combination with any form of glass chimney or any other burner substantially and for the purpose set forth.

2,148.—Henry Knight, of Jersey City, N. J., for an Improvement in Combination Cement and Metal Pipes:

I claim a molded combination cement and metal pipe, with or without a metal coupling band on one of its ends, substantially as described, which is molded complete in a single mold at one and the same operation with is metal portion, A, intermediate between its inner and outer molded cement surfaces.

2,162.—Milo D. Wilder, of La Porte, Ind., Improvement in Water Elevators:

I claim the endless platform of slats, A, in combination with a pump, R, and a ball governor provided with a brake formed of the levers, N, N O O, opening on a wheel, F, all arranged for joint operation as and for the purpose set forth.

[This invention relates to an improved water-elevating device which is chiefly designed to be operated by stock so that the latter may raise their own water. The invention, however, is capable of being operated by horse-power, so as to be used as a force-pump when required.]

2,166.—A. H. Merrill (assignor to A. H., R. S. and J. S. Merrill), of Boston, Mass., for Improvement in Implements for Handling Lamp Chimnies:

I claim as a new article of manufacture a lamp chimney handling device formed of or forming a griping frame and handle combined for application and use substantially as described.

GAS-WORKS SEIZED BY THE REBELS—The best description of property which has fallen into the hands of the Southern Confederates is the gas-works, or that portion of them belonging to northern men. Among these is the Memphis, Tenn., Gas-works, one of the most profitable at the South, built by Thompson Dean, Esq., of Cincinnati, O., who owned $142,000 of the $200,000 of capital stock. Another northern man owned $40,000 of it, leaving but $18,000 of the stock in southern hands. The Confederacy confiscated the $182,000 northern stock at the start, and are deriving a handsome income from it. Mr. Dean had just laid in 20,000 tons of coal on very favorable terms, for which Jefferson Davis is very much obliged. Mr. Dean is quite good-natured about it, having plenty more left.

LORD REDESDALE'S SALE OF GAS ACT.—On Friday last, an establishment which has been provided by the justices of the peace of the city for the purpose of testing gas-meters under the above Act, was opened. In this establishment (situate in Lower Whitecross street,) there are not only ample means for testing gas-meters required in the city, but the inspector states that the machinery under his control is capable of testing the whole of the meters manufactured in the metropolis. On this occasion, a series of experiments were made upon variously constructed meters, in the presence of the late Lord Mayor, Mr. Alderman Carter (who took particular interest in the operations, and put many questions), Alderman and Col. Wilson, Mr. Alderman Dakin, and other civic functionaries. Arrangements are made for the reception of copies of standard gas-holders, similar to those in the possession of the Comptroller-General of the Exchequer. These copies will be deposited in a separate department, constructed expressly for their reception. This department attracted the especial notice and admiration of all present. In the model-room, there is a capacious gas-meter of highly-finished workmanship to register the consumption of gas used in testing the meters.—*Journal of Gas-Lighting.*

A PATRIOTIC GAS COMPANY.—The Pittsburgh, Pa., Gas Company, in April last made a donation of five hundred dollars for the assistance of the families of the brave volunteers who have gone to fight in the defence of their country. In addition to this they have furnished gas free of cost to the various halls used by the Home Guards for drill and exercise. This is an additional instance of the patriotism exhibited by a number of our gas companies, and affords a gratifying evidence of liberality on the part of the trustees, which we are sure will be appreciated.

LIGHTHOUSES DESTROYED. — The following notice shows that the rebels have committed fresh depredations upon the government property:

"NOTICE TO MARINERS.—Jupiter Inlet and Cape Florida lighthouses have been blown up by the rebels.

"GEO. W. BLUNT."

SITUATIONS WANTED.

To Engineers and Superintendents.

THE WRITER, AT PRESENT holding the situation of Secretary, Book-keeper, and General Superintendent of a Gas Works in a city two hours ride by rail from New York, at a salary of $1,200, is desirous, on account of his health, to exchange for a position in the same business in some town on the sea-board or salt water.

A lower amount of salary will be exchanged for, if the place is otherwise satisfactory—or a bonus will be paid for an equal amount of salary. The exchange to be, of course, subject to the approval or consent of the Directors of each Company. Address communications to H. H., at the office of the AMERICAN GAS-LIGHT JOURNAL, No. 39 Nassau street, New York City.

BY A COMPETENT MAN, A situation as Superintendent or Inspector of a Gas-Works. Address GAS ENIGNEER, Post-Office, Pittsburgh, Pa.

SCIENTIFIC BOOKS.

GAS ENGINEERS' LIBRARY.—A few works indispensable to Engineers, Contractors, and others engaged in the construction of Gas-Works and manufacture of Gas, have been selected, out of a large stock of chemical and other works, and are recommended to the attention of those interested. See page 208, vol. II, of this JOURNAL.

For sale at the Rooms of the AMERICAN GAS-LIGHT JOURNAL, New York.

PORTABLE GAS-WORKS.

BUTLER'S PATENT PORTABLE **ROSIN GAS WORKS,**

FOR

Dwellings, Churches, Country Villages,

As well as for Consumers in Large Cities.

JOHN BUTLER,
No. 112 Fulton st. and 15 Henry st.,
Brooklyn, N. Y.

FOR LIGHTING RAILROAD CARS AND STEAMBOATS

☞ WITH GAS.

The whole process of Filling the Gas-Holders of a Railway Train, requires but Three Minutes.

Apply to the
NEW YORK CAR & STEAMBOAT GAS. CO.,
No. 117 Fulton st., N. Y.

C. R. WOODWORTH, Manufacturer of

PORTABLE GAS WORKS,

74 WALL STREET, New York City.

WOODEN GAS-PIPE.

PATENT PREPARED WOOD-PIPE for Gas Mains.—Wm. Stephenson would call the attention of Gas Companies and Engineers to his Patent Prepared Wood Gas-Pipe. This Pipe is prepared in a way so as to effectually prevent its decay, and has been proven to be superior to Iron pipe in three towns where he has erected Gas-Works.

The cost of the Pipe, and the facility with which it can be laid, and *also its not being subject to expansion* and contraction by change of temperature, render it *entirely free from leakage;* there is also less condensation than in Iron pipe. These are among the advantages gained by the use of this Pipe, and are sufficient to recommend it to the favorable consideration of Gas Companies and Engineers; and it is considered, by those who have examined it, as a most valuable improvement.

A sample of this pipe may be seen at the rooms of the AMERICAN GAS-LIGHT JOURNAL, No. 39 Nassau street, New York; and further information, with reference to this Pipe, may be obtained by application to the Patentee,

WM. STEPHENSON, Gas Engineer,
Fremont, Ohio.

Croton Aqueduct Department.

OFFICE OF THE CROTON AQUEDUCT DEPARTMENT,
NEW YORK, September 23, 1861.

TO TRAP-BLOCK PAVERS.—Sealed proposals endorsed "Proposals for paving Bleecker street," will be received at this office until 12 o'clock, M., of Friday, October 4th, 1861.

For the paving of Bleecker street, from Broadway to Eighth avenue, with trap-block pavement.

Specifications and blank forms for bidders can be obtained on application to the Coutract Clerk at this office.

THOMAS STEVENS,
THOMAS B TAPPEN,
A. W. CRAVEN,
Croton Aqueduct Board.

WOONSOCKET GAS CO.—At the Annual Meeting of this Corporation, held on Monday, Sept. 2, 1861, Henry C. Kimball, Hiram Allen, Oscar J. Rathbun, Estus Lamb, Willis Cook, Joseph E. Cole, Elijah B. Newell, Royal C. Taft, and Bradbury C. Hill, were elected Directors, and R. G. Randall, Secretary, for the ensuing year.

At a meeting of the Board of Directors, held on Tuesday, Sept. 10, 1861, Henry C. Kimball-Esq., was re-elected President, and Oscar J. Rathbun, Secretary of the Board of Directors.

A Dividend of 4 per cent. was declared, payable to Stockholders on and after October 1st, 1861.

R. G. RANDALL, Secretary.

Woonsocket, R. I., Sept. 20, 1861.

STOP-COCKS, &C.,

DANIEL THOMPSON, Machinist and Manufacturer of Stop-Cocks, Fire-Plugs, &c., for Water-Works, Stop-Cocks, Valves, Drip Pumps, &c. for Gas-Works, No. 133 Elfreth Alley, Philadelphia.

GAS THERMOMETERS FOR ascertaining and regulating the temperature of the gas while passing through the purifiers into the station meters. For sale at the Rooms of the AMERICAN GAS-LIGHT JOURNAL.

STEAM-PUMPS.

WORTHINGTON'S STEAM PUMPS, extensively used by Gas-Light Companies. For Sale at greatly Reduced Prices.

Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.

Patent GATES, for Water and Steam-stops.

HENRY R. WORTHINGTON,
61 Beekman street, N. Y.

GAS-COAL.

LIVERPOOL AND NEWCASTLE **CANNEL & COAL,**

FOR

Gas-Manufacturers and House Use.

The careful shipment of the best qualities, of Cannel and Coal, at the lowest rates current at the time of engagement guaranteed.

T. W. PARMELE, Agt.,
No. 4 Irving Place, New York.

LIGHT! LIGHT! LIGHT!

NORTH.	SOUTH.
COAL OIL,	CAMPHENE,
Our own production!	The production of the rebels!
CHEAP AND SAFE!	DEAR & DANGEROUS!
Cherish it as a blessing.	Throw it to the dogs.

I would respectfully call the attention of dealers in lamps, storekeepers, and the public generally, to my new contrivance for burning Coal Oil. All will agree that it is "just the thing" for these "dull times." It will give double the light of camphene at quarter the expense, and no danger, and is far superior to gas, and less than half the cost. It is perfectly safe and simple, and no breaking of chimneys. It will burn the cheapest oil without smoke or smell, and with beautiful and pleasant light. I will make Camphene lamps to burn Coal Oil, at a small expense for altering, or purchase them for cash. Lamps, Oils, Wicks, Cans, &c., always on hand. My patent is applied for, and may be issued in a few days.

[illegible] 53 Carpenine street.

UNION WIRE-WORKS.

ROBERT McMURRAY & CO., No. 29 Fulton Street, New York, Manufacturers of Copper, Brass, and Iron Wire Cloth for Gas Works, all kinds of Foundry Riddles, Sieves, and Screens. Improved Wire Window Shades, Wire Bolting Cloth, Duster-Wire, Wire Cloth for fanning machines, Rosin, &c., Locomotive Wire, Fire Guards, Ornamental Wire Work of every description. Patent Improved Wove and Laid made Dandy Rolls repaired and designed to order.

HEATING APPARATUS.

JOSEPH NASON & CO., Constructors of Apparatus for Warming Public and Private Buildings by Steam and Hot Water.

Improved Fans for Ventilating Hospitals and other Public Buildings.

JOSEPH NASON,
HENRY R. WORTHINGTON,

No. 61 Beekman street, corner of Gold street, New York.

DRAIN-PIPE.

DRAIN PIPES, ENGLISH AND AMERICAN.

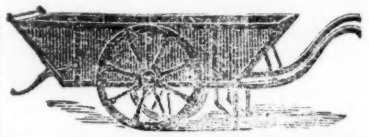
Garnkirk Chimney Tops,
Plumbers' Materials,
Minton's Encaustic Tiles.

For Sale by
MILLER & COATES,
279 Pearl st., New York.

McKINNY & KELLY,

MANUFACTURERS OF

COAL-SCOOPS AND COKE-BARROWS,



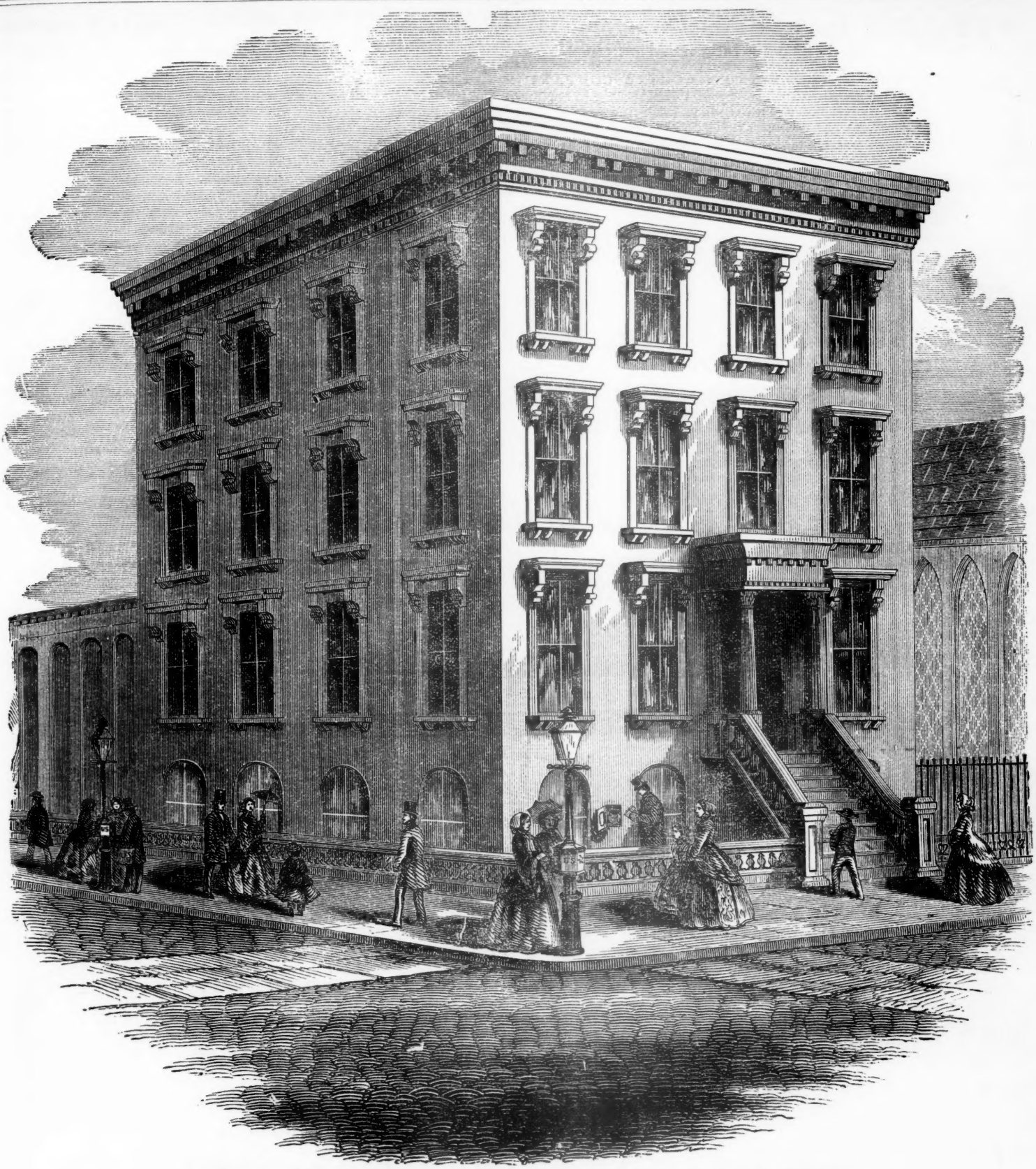
FURMAN ST., near Fulton Ferry, Brooklyn, N.Y.

ANTI-FREEZING APPARATUS.

FREEZING OF GAS-PIPES.—Walton's Patent Anti-Freezing Apparatus illustrated by Engravings in the AMERICAN GAS-LIGHT JOURNAL, of Jan. 1, 1861, page 212, is the most simple, durable and efficient of any known process.

See also certificates from Cincinnati, O., and Louisville, Ky. Gas-Works in same number, page 208. Address,

JOHN WALTON,
Supt Gas-Works, Louisville, Ky.



THE TWO GREAT PATENTS OF THE DAY.

1.—Improved Mode of Setting Gas-Meters in the Walls of Buildings.

2.—Cast-Iron Mail-Stations for Public Lamp-Posts.

Adopted by the UNITED STATES GOVERNMENT for the Principal Cities.

ALBERT POTTS, Philadelphia, Patentee.

By the FIRST IMPROVEMENT the Meters may be inspected at any time from without, by the agents of the Gas-Company having keys for that purpose. Thus burglars need no longer gain admittance to dwellings under pretense of examining the meters, while they, in fact, examine the fastenings. The meter-box, being neatly and securely imbedded in the front wall, the meter is protected against frost by means of a thick pad on the back of the door. It has been satisfactorily tested in long continued severe weather and found to be eminently successful.

The SECOND IMPROVEMENT speaks for itself. The cities of New York and Philadelphia are already supplied with these boxes, and the convenience to the citizens and increase of revenue to the Post Office Department are most marked. Always in sight, securely fastened to the most public objects, protected by light, day and night, they have become the most popular of all modern improvements and will be immediately adopted throughout the country.

Both of these improvements are to be seen at the Rooms of the AMERICAN GAS-LIGHT JOURNAL, New-York City. For further information address the Proprietor of this JOURNAL, who is authorised to contract for the use of both Improvements, or

ALBERT POTTS, Philadelphia.

THE

STERLING GAS-REGULATOR,

Improves the Light and Saves a Large Per Centage of Gas.

MANUFACTURED BY THE

WHEELER & WILSON SEWING MACHINE COMPANY.

It is well known that Printers require the best and most brilliant light In proof of the superiority of these Machines over all others, the following New York establishments are using them, and testify to their excellence:—New York Times, New York Herald, New York World, New York Tribune, New York Sun, Journal of Commerce, Courier & Enquirer, Evening Post, The Zietung, Dispatch, Leader, Scientific American, Advertiser and Spectator, Independent, Daily News, Harper's Monthly and Weekly, Transcript, Mercury, Atlas, Life Illustrated, Albion, Spirit of the Times, AMERICAN GAS-LIGHT JOURNAL, Christian Enquirer, Churchman, Church Journal, Christian Advocate, Christian Ambassador, Christian Intelligencer, Observer, Sunday Times, Sunday Courier.

By order of the New York and Brooklyn Common Councils, these Regulators are now used in the City Halls, Police Stations, Markets, and other Public Buildings in both cities.

They are Warranted by the

WHEELER & WILSON SEWING-MACHINE CO.,

505 BROADWAY, NEW YORK,

To keep in order, and always maintain the pressurs of the Gas at the lowest point for a brilliant light and economical combustion. They are so constructed that *under no circumstances can the Mercury get into the Meters, or in any way injure them.*

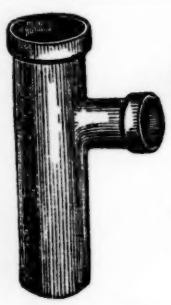
WARREN'S PATENT WATER & ALARM GAUGE,

For Protecting the Flues and Preventing Steam-Boiler Explosions.

This is a reliable High and Low Water Detector, arranged so as to render it one of the best Water Gauges ever attached to a Steam-Boiler; always presenting before the Engineer at sight the exact height of the water, and if, by oversight or by sudden leakage, the water gets low in the boiler, it will cause an alarm before the water gets below the flues, thereby preventing an explosion. This Gauge can be made to alarm at any point desired as a High Water Detector, thereby preventing the water from getting to that height as to be forced into the cylinder of the engine, often causing serious accidents. Thus it is a High as well as a Low water Detector. For sale by

WARREN & BANKS,

153 Centre st., corner of Canal st., New York, Where a Gauge is constantly in operation.



GAS, STEAM, SMOKE,

PURE WATER & SOIL PIPE,

FROM

JOSEPH CLIFF,

Wortley Fire-Brick Works, Leeds, England.

T. W. PARMELE, Agt.,

No. 4 Irving Place, N. Y.

JOHN RUSSELL & CO.,

PATENT TUBE MAKERS,

THE OLD TUBE WORKS, WEDNESBURY, AND THE ALMA WORKS, WALSAL, STAFFORDSHIRE,

69 UPPER THAMES ST., & 5 CHARLES ST., SOHO, LONDON;

AND 35 GRANBY ROW, MANCHESTER, ENGLAND.

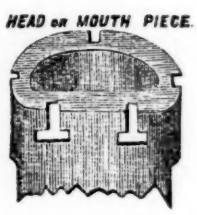
The original Manufacturers of WROUGHT-IRON GAS TUBES, and the Inventors of the Lap-welded Tubes for Locomotive and Marine Boilers. All kinds of TUBES and FITTINGS, whether for Gas, Steam, or Water. Galvanized and Composition Tubes. Chandeliers, and every kind of Brass work for Gas and Steam.

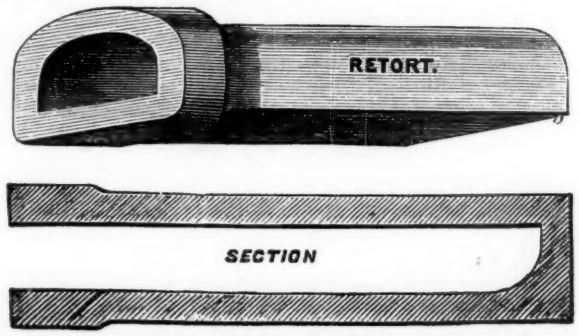
STOCKS, DIES, AND TAPS OF ALL SIZES. CAST-IRON PIPE AND GAS-METERS.

All Goods Warranted.

KING BROTHERS,

STOURBRIDGE, ENGLAND, FIRE-BRICK AND RETORT WORKS.





KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for Burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them

Free from Cracks and Correct in Form.

By great care in Manufacturing, combined with the advantages in Burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

RETORT OVENS, FIRE-BRICKS, GUARDS, SADDLES, RABITTED BURS, FLUES, AND QUARRIES, ARE ALL MANUFACTURED OF THE SAME QUALITY OF CLAY.

EVERY RETORT AND BRICK IS BRANDED "KING BROTHERS, STOURBRIDGE."

Apply to E. W. BARSTOW, 83 Maiden Lane, New York, where samples can be seen.

HARRIS & PEARSON,

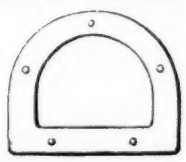
PROPRIETORS OF

Best Glass-House Pot & Crucible Clay.

Manufacturers of Fire-Bricks, Gas-Retorts, and Glass-House Furnace-Bricks of every description.

AMBLECOTE FIRE-CLAY AND BRICK WORKS, STOURBRIDGE, ENGLAND.

COWEN'S PATENT FIRE-CLAY RETORTS.



JOSEPH COWEN & CO.,

BLAYDON BURN, near Newcastle-on-Tyne, England,

Have always been, and are still, the most extensive manufacturers of FIRE-CLAY RETORTS in the United Kingdom, and were the only parties to whom a Prize Medal was awarded at the Great Exhibition, in London, 1851, for

"GAS RETORTS, AND OTHER OBJECTS IN FIRE-CLAY."

J. C. & CO. make Fire-Clay Retorts of all shapes and dimensions, and to fit existing mouth-pieces.

Orders for FIRE-CLAY RETORTS, TILES, BEARERS, and other articles in Fire-Clay, receive immediate attention, and are promptly executed at their Works, as above. Drawings of Settings adapted for Cowen's Patent Fire-Clay Retorts supplied.

AGENTS, MESSRS. MEAD & BELL,

13 CLIFF STREET, NEW YORK.

N. B.—J. C. & CO.'S RETORTS are well adapted for small Gas-Works, as they can be used without an Exhauster.

POTTS' REVOLVING SIGNAL LIGHTS,

PATENTED SEPTEMBER 8, 1857.

Mr. ALBERT POTTS, the well known Inventor of the LAMP-POST LETTER-BOXES, which have been adopted by the Post-Office Department for the large cities of the United States—and also of the GAS METER BOX, to be set in the front walls of houses, thus doing away with visits from Gas Inspectors, or burglars in gas-clothing, has lately brought forward a third Invention, which in point of importance and world-wide usefulness, surpasses the others entirely.

These SIGNAL LIGHTS are intended for use on Vessels propelled by Steam, and those exclusively. They specially indicate the presence of a Steamer, and by their use, there will be less likelihood of mistakes, and consequent collision than at present. They are also intended for SIGNALLING AT NIGHT, and can be used for that purpose UNDER ANY CODE of SIGNALS NOW ARRANGED FOR FLAGS.

This Improvement in Lights for Steam Vessels, consists in having the Lanterns containing the colored lights, connected by means of a series of cogged gearing with some convenient part of the Engine or Machinery, so as to cause them to have a revolving motion around their axis. On side wheel steamers, the Lanterns should be placed directly over the wheel-houses, and the power, or motion to turn them, may then be very conveniently obtained frem the paddle-wheel shaft. On Propellers, the Lanterns should be placed on each side of the Pilot House, or hurricane deck, and the rotary motion derived from any convenient or suitable part of the Engine or Propeller Shaft. Each Lantern is supported on the end of movable cranes, so that their relative positions may be changed and properly adjusted to suit the view of observers on either side of the vessel at the time of signalling.

The Lanterns to be used in this improvement may be constructed for Burning Oils, Fluids, Gas, or any of the known modes of illumination, and should be furnished with one or more lenses and reflectors, so as to concentrate the rays of light, and project them over the horizon with the greatest intensity. The lenses for this purpose should be made with colored glass, viz., Red and Green, and the position of the respective Lanterns, according to the color of the lenses therein, must be placed on the sides of the vessel so as to answer to the requirements of Rules and Regulations made and published by the Supervising Inspectors of Steamboats, agreeably to the Act of Congress of the United States in such cases made and provided. That is to say—by said Regulation—the Lantern having the green lenses for producing the Green Colored Light, must be placed on the starboard side of the vessel, and the other Lantern producing the Red Light, to be placed on the port side thereof. In pursuance, also, of the aforesaid Rules and Regulations, there is to be found in board and behind each Lantern, a screen to answer the purposes therein mentioned.

The cogged gearing, by which the Lanterns are connected with the Engine or paddle wheel shaft, and thereby caused to revolve when the Engine is in motion, is so arranged that the connection may be readily shipped or unshipped, and the lanterns made stationary or otherwise, at the pleasure of the Pilot, or those whose duty it may be to operate and attend to the same. The cranes on which the Lanterns are placed, are also rigged so as to be readily turned horizontally from one position to another, so as to present one or both lights to the view of observers when laying athwart ships at the time of signalling.

On the Use and Application of the Improvement for Night Signals.

When the vessel is under weigh, or going ahead in its course, the Lanterns are to be placed directly athwart ships, so that such colored light therein will then have the position and place prescribed by Rule Seventh of the aforesaid Supervising Inspectors of Steam Boats, and with the screens behind them, as above described, will then answer all the intents and purposes for which the colored lights are thus required to be used, as illustrated in the several diagrams published by said Inspectors for the working of a system of Colored Lights. The Lights in this case, according to the color seen by the observer, indicate the course or direction of the vessel whereon they are carried. When the Lanterns with the colored lights therein, are made to revolve around on their axis, as proposed in this improvement, in addition to the signal above, another, and as we believe, very important and useful signal is thus formed, indicating that the vessel, whereon it is carried is a Steamer. In dark foggy nights, it is found by experience, to be somewhat of a difficult task to distinguish sailing vessels from Steamers and Propellers, especially when the latter are rigged, and carry a press of sail. When Steamers meet "head and head," it is the duty of each to pass to the right, or, on the larboard side of the other. Whereas, when a Steamer meets a sailing vessel, the former must give way and allow the latter to pursue its course. Hence, to carry out the regulations of the said Steamboat Inspectors, and prevent collisions, it is important to have some infallible sign, whereby the character of the vessel may be readily seen and determined. Several very fatal collisions have recently taken place through mistakes of this kind.

On Signals for Speed and Distance.

The gearing of the Lanterns with the paddle wheel or propeller shaft, may be so arranged as to be an index of their speed. A very good proportion, would probably be to make the Laterns turn about one third as fast as said shaft. Hence, when the speed of the vessel is previously known, when making a certain number of revolutions of the paddle or propeller, it becomes an easy task from observing the time with which the Lanterns thereon may be turning to approximate to the speed with which the said vessel is moving at the time of observation. Again, as the arcs described by the rays of light from each lantern, as they revolve around on their axis, is greater in proportion to the distance from said lantern, so will the time in which said rays move over any given space, be less in the same proportion. Hence, when the lights are very remote, or far off, from the observer, the duration of each column or cylinder, of rays from each lense, would pass the eye of the observer, in a short space of time, or with great velocity. Whereas, at a nearer point of observation, the time of its passage would be considerably lengthened, or the motion thereof apparently much slower. From these facts, we believe the improvement is susceptible of indicating, in an approximate manner, the speed and distance of vessels whereon the revolving lights may be used.

On the Application of the Improvement for Marine Telegraphic Purposes.

The Revolving Lights can be readily applied to the general purposes of Marine Signalling at night, as follows: In order to show this application, we have adopted the Numbers as given in Roger's Code of Marine Day Signals, believing that work to be somewhat of a standard in matters of this kind. Instead of the flags used in the above code, for day signals, to indicate the combinations of two or more letters of the Alphabet, which combination is referable to certain numbers indicative of the words or sentences telegraphed, we propose to perform the same operation, at night, by means of the two revolving colored lights, so as to indicate the numbers directly to which the intended words or sentences to be telegraphed are referable. Thus, whether the vessel to be signalled is ahead, astern, or abaft the beam, the position of the two colored lights must be so adjusted, by means of the moveable cranes, whereon said lanterns or lights are fixed, that the two lights may be fully made visible to the observer. When both lights are thrown into this position, stopping the motion of the lanterns may be the signal for calling attention, or a rocket fired off, or the steam whistle blown, would answer the same purpose. Now, in order to represent the ten numerals, we propose to indicate them by the respective motions of the two colored lights, as follows:

RED LIGHT.				GREEN LIGHT.			
One Red,	Represents	Number	1.	Two Green,	Represents	Number	2.
Three	do.	do.	3.	Four	do.	do.	4.
Five	do.	do.	5.	Six	do.	do	do. 6.
Seven	do.	do.	7.	Eight	do.	do.	do. 8.
Nine	do.	do.	9.	One	do.	do.	do. 0.

In the above arrangement, it will be seen that all the odd numbers are made by the Red Light, and the even numbers by the Green Light. In order to indicate the repeat of the last number, once or more times, or for other special purposes, which may hereafter be found useful and necessary, an even number of lights may be shown by the Red, and an odd number by the Green. It will be understood that when the Lanterns are made with three lenses in them, the numerals as above arranged are formed by the number of times a new light or lense is presented to the observer. Thus to indicate the number 3, the Red Light or Lantern would make one entire revolution; and to make the number 6, the Lantern carrying the Green Light would make two revolutions, and so on with the other numbers. When a symbol is made, the motion of the Lantern is to be suspended for a short time, and when a number expressing a sentence is formed, the lantern may be stopped for a longer period, or some one of the special signals above referred to, may be used for this purpose.

To show the application of this improvement as above mentioned, whereby these Lights can be used as readily for Night Signals, as Flags are used for Day Signals by the author of Roger's Code, we shall use the sign O, colored red or green, according to the light used, to show the number of movements performed by the respective lights in order to represent any desired number of said code, suitable for the required purpose.

RED LIGHT.	GREEN LIGHT.
O, O, O, O, O,	
O, O, O, O, O, O, O.	
	O, O.
	O. O.

The above would represent the number 5722, and by reference to said Roger's Code, would be found to stand before the sentence:
"WILL YOU SHOW THE NUMBER THAT REPRESENTS YOUR NAME?"

RED LIGHT.	GREEN LIGHT.
O.	
O, O, O, O, O.	
O, O, O, O, O, O, O.	
	O, O.

Here the number expressed is 1572, and per the same Code, stands for
"WHERE ARE YOU BOUND?"

RED LIGHT.	GREEN LIGHT.
O.	
O, O, O, O, O, O, O, O, O.	
	O, O, O, O, O, O, O, O.

The number thus expressed is 1928, and per said Code is
"WHAT IS YOUR CARGO?"

RED LIGHT.	GREEN LIGHT.
O, O, O, O, O.	
	O, O, O, O, O, O.
	O.
O, O, O.	

Here the number expressed is 5603, and stands for
"HAVE YOU ANY NEWS?"

(RED LIGHT.)

Fig. 2

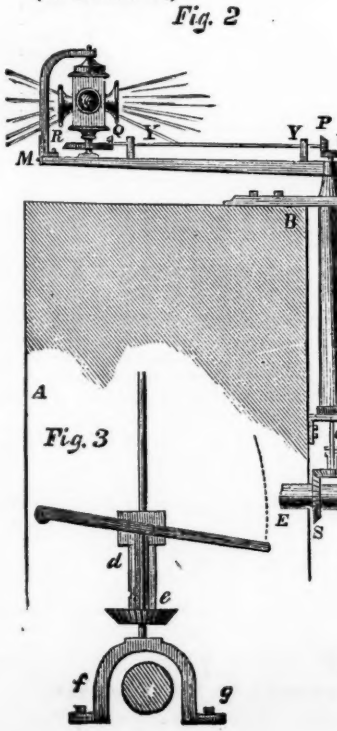


Fig. 3

(GREEN LIGHT)

Fig. 1

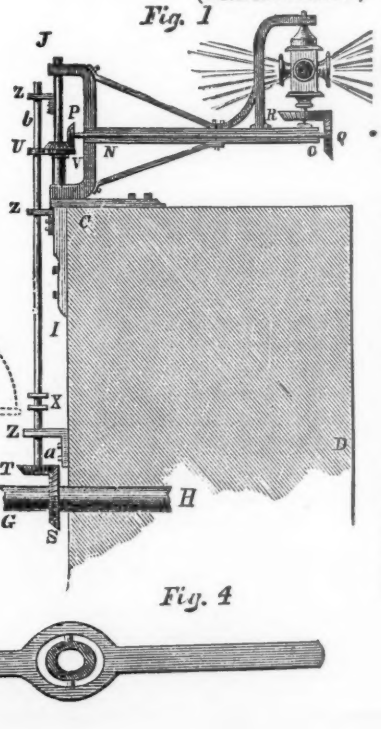


Fig. 4

MECHANICAL CONSTRUCTION.

In our engravings, Figs. 1 and 2, represent Vertical Sections through the wheel-house. In them E F and G H represent portions of the main Shaft. In Fig. 1, I J is a stout Iron or Wooden post, fastened against the side of the wheel-house, directly over the main shaft On the upper part of this post, is fitted the moveable arm or crane N O, to the main shaft is fitted the bevel wheel S, and to the lower end of the rod a b, is fitted a corresponding wheel T. U is a small pinion on a b, which gears with the spur wheel, V, which in turns gives motion to the wheels, P and Q, and so revolves the lamp R. It will be seen that a Rotary motion is given to the lamp, when the main shaft is in motion and a b connected.

It can be disconnected by a lever, acting between the bosses X, which will elevate the rod in the guides Z Z Z.

Fig. 2 is another arrangement, for the same purpose. In this, K L, represent a hollow Shaft, on which is firmly fastened, the arm L M, on which is the lantern. The hollow post is secured to the wheel-house by the straps K and B, and it can turn freely in them, the other part being the same in them as in fig. 1

The lever K W, when drawn down, will turn the frame in any required position around the Shaft c U. In fig. 1, the arm or crane N O, may be operated by cords from the wheel-house, but in this device, the rod c U. does not lift up as in fig. 1, but in its place, the lower end is made square, and on it slides the short tube, d E, shown in fig. 3. The lower end of the rod turns on a bridge, f g, spanning the main shaft. On the upper end of the tube, d e, a lever is attached by means of boxes and collars as shown in fig. 4. This lever when raised carries with it the beveled wheel T, thus disconnecting the gearing apparatus.

ALBERT POTTS, Patentee,
PHILADELPHIA, Pa.

OUR AGENTS.

AGENTS OF
The American Gas-Light Journal,

From whom it can be purchased in single copies or by the year.

TERMS—$3 per annum. Single copies 15 cents. Liberal discount to Dealers.

ALBANY, N. Y.	Thomas Hastings, P. L. Gilbert, Wm. J. Bell.
BOSTON, Mass	D. Howard, Jr., Cushing & Bowen.
BRIDGEPORT, Ct.	News Agent at R. R. Station.
BUFFALO, N. Y.	T. G. Hawks, B. F. Felton, D. Lockwood.
CARMANSVILLE, N. Y.	W. Cameron.
CATTSKILL, N. Y.	W. Van Loan.
CHICAGO, Ill	J. McNally, J. R. Walsh, Shear & Co.
CLEVELAND, O.	Hawks & Bros.
COLDSPRING, N. Y.	A. Tenant.
DOBBS' FERRY, N. Y.	E. Ackerman.
ELIZABETH, N. J.	R. Caldwell, Wm. Gale.
ELMIRA, N. Y.	M. B. Brink.
FALL RIVER, Mass	L. J. Moroo.
FISHKILL LANDING, N. Y.	J. R. Van Slyke.
FISHKILL VILLAGE, N. Y.	B. Stanbach.
FORT WASHINGTON, N. Y.	J. Maloney.
FRANKLIN, N. Y.	G. W. Reynolds.
GALENA, Ill	G. H. Schenck.
HARTFORD, Ct.	D. C. Pond, C. J. Geer.
HASTINGS, N. Y.	D. Crane.
H NESDALE, Pa.	A. G. Forbes.
HUDSON, N. Y.	G. Parton.
HYDE PARK, N. Y.	J. N. De Graff.
JAMESTOWN, N. Y.	G. W. Hazletine.
KINGSTON, N. Y.	C. Van Buren.
MILBURN, N. J.	W. Hastings.
MORRISTOWN, N. J.	J. West, J. R. Runyon.
NEWARK, N. J	Agens & Co., J. R. Jillison.
NEWBURG, N. Y.	W. H. Callahan, J. M. Martin, P. C. Daly, G. P. Lomas.
NEW HAVEN, Ct.	E. Downs, T. H. Pease.
NEWPORT, R. I.	B. J. Tilley.
NEWTOWN, N. J.	H. Warren.
NYACK, N. Y.	H. Hazelbarth.
PEEKSKILL, N. Y.	J. A. Green.
PHILADELPHIA, Pa	V. H. Myers, 152 South Fourth street.
PITTSBURG, Pa.	J. W. Fittock, Henry Miner, L. P. Hunt.
POUGHKEEPSIE, N. Y.	J. H. Bush, W. Patrick, G. Williamson.
PROVIDENCE, R. I.	D. Kimball,
RAHWAY, N. J.	W. H. Neefers.
RONDOUT, N. Y.	A. M. Barbes, Winter Bros.
SARATOGA SPRINGS, N. Y.	A. Hill.
SAUGERTIES, N. Y.	T. J. Barrett.
SING SING, N. Y.	F. Bushers.
SOMMERVILLE, N. J.	C. Barkalow.
STAMFORD, Ct.	G. R. Treate. News Agent at R. R. Station.
ST. JOHNSVILLE, N. Y.	G. A. Russell.
SYRACUSE, N. Y.	J. H. Green.
TARRYTOWN, N. Y.	C. De Riviere.
TOLEDO, O	L. C. Shear.
TROY, N. Y.	L. Willard, J. F. Hoyt.
WASHINGTON, D. C.	Taylor & Maury, Frank Taylor, P. De Vine, Kirkwood House, News Agent Willard's Hotel.
WATERBURY, Ct.	D. J. Bishop.
WELLSVILLE. N. Y.	Wm. Patton.
WEST POINT, N. Y.	H. N. Sheerar, R. A. Grand, opposite West Point.
YONKERS, N. Y.	D. Burns, John Featherstone.

General Agents in New York City.

ROSS & TOUSEY, 121 Nassau Street.

H. DEXTER & Co., 113 Nassau Street.

OKIE, DAYTON & JONES, cor. Ann and Nassau Sts.

L. N. SHEAR & Co., 55 Hudson Street.

HAMILTON, JONNSON & FARRELLY, 22 Ann Street.

J. F. FEEKS & Co., 24 Ann Street.

F. S. THOMSON, New Haven Railroad Station, 27th Street.

THOMAS FITZGIBBONS, New Jersey and Amboy Railroads.

ALEXANDER CRAW, Harlem Railroad Station, 26th Street.

WM. SKELLY, Greenwich Street, Erie Railroad Station, Duane Street.

In Canada.

THE AMERICAN GAS-LIGHT JOURNAL can be ordered through any of the News Agents in either of the Canadas.

In Great Britain.

TRUBNER & Co., 60 Paternoster Row, London.

In France.

Bureau of *Le Journal de l'Eclairage au Gaz*, Boulevard de Poissonniere, No. 24.

ROOMS IN NEW YORK.—No. 39 Nassau Street, opposite the Post Office.

Terms—$3 per annum. Single copies 15 cents.

IRON FOUNDRIES.

S. V. MERRICK, J. VAUGHAN MERRICK, W. H. MERRICK.

SOUTHWARK FOUNDRY, Philadelphia.

MERRICK & SONS, Engineers, Manufacturers of every description of Gas Machinery

Retorts, Bench Castings, Condensers, Washers, Scrubbers, Wet or Dry Lime Purifiers, Coke Wagons, Fire Tools, Wrought Iron Grate Bars, Gasholders, either TELESCOPIC OR SINGLE, WITH SUSPENSION FRAMES COMPLETE; Wrought Iron Roof Frames, for Iron or Slate; Stop Cocks, Exhausters, Steam Pumps, Boilers and Tanks, Steam or Hand Air Pumps for proving Street Mains, Centre Seals, Governors, Wrought or Cast-Iron Lime Sieves for Purifiers, Purifier Hoisting Machines, &c., &c.

Address— MERRICK & SONS, 5th and Washington Streets, Philadelphia.

BERGEN IRON WORKS, Established 1833.

R. A. BRICK, Manufacturer of CAST IRON WATER and GAS-PIPES RETORTS, PIPES, &c., always on hand. Office, 109 Leonard Street, New York.

OREGON FOUNDRY, Nos. 740, 742, 744 Greenwich Street, New York.

HERRING & FLOYD, proprietors, manufacture Gas Compensators of all sizes, Self-Acting Valves, Exhausters upon an improved plan, costing less than half those of English manufacture, also castings of every description for Gas and Water Works.

Herring & Floyd offer for sale Sabbaton's Patent Screening Shovels for coke and coals, made of malleable iron, of all sizes; Sabbaton's Patent Improved Cast Iron Furnace Frame and Door, arranged to protect the iron work of the door and frame from direct contact with the fire; also, Floyd's Patent Malleable Iron Retort Covers, only quarter of an inch thick, but of convex form, and of great strength, as is attested by certificates from several of the leading Gas-works in America. For engravings of all the above patents see AMERICAN GAS-LIGHT JOURNAL for October, 1859, pages 65 and 71.

Samples of the above castings can be seen at the Rooms of the AMERICAN GAS-LIGHT JOURNAL.

COLWELL & CO., Manufacturers, of Pig Iron and Cast Iron Gas and Water Pipes, No. 207 North Water street and 206 North Wharves, Philadelphia.

STEPHEN COLWELL, W. DWIGHT BELL, THEO. TREWENDT, SAMUEL FULTON.

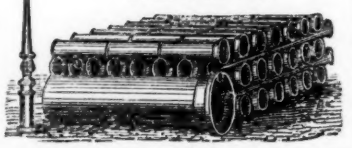
TRANER & MERCER, 117 NORTH Water Street, & 124 North Wharves, Philadelphia, AGENTS FOR THE MERCER FOUNDRY, AND ELK SHEET IRON WORKS.

CAST IRON STREET MAINS; *Bends, Branches, Chemical Retorts, and all kinds of Castings for* GAS-WORKS, either COAL or ROSIN WORKS. SHEET IRON FOR GASOMETERS *cut and punched to order.* BOILER IRON *of all descriptions.* RUSSIA SHEET IRON, TIN PLATES, BLOCK TIN, COPPER, PIG LEAD, SPELTER, and Metals generally.

FLORENCE IRON WORKS.—The subscriber is prepared to execute orders and make contracts for Cast-Iron Water and Gas-Pipes, from 2 inches to 48 inches in diameter; also, Retorts, Bench-Castings, Branches, Bends, and all Castings for Water or Gas-Works. Pipes and Castings coated with Smith's Patent Coal Tar Varnish to prevent corrosion.

JOSEPH G. JONES, 205½ Walnut Street, Philadelphia.

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut Street,
PHILADELPHIA.



CAST IRON PIPES.—EARL'S IRON WORKS, NEWARK, N. J., 91, 93, 95, 97 and 99 Chestnut Street. Branch Office, 21 Centre street, New York.

The subscriber continues to manufacture Superior Cast-Iron Gas and Water Pipes, Branches, Bends, Angles, Bevel Hubs, Reduces, Sleeves, Drip Syphons, Plugs, Caps, Retorts, Bench Castings, and Castings in general. Particular attention paid to all Castings connected with Gas-Works. E. B. EARL.

S. S. ASHCRAFT, CINCINNATI, O., Manufacturer of Gas and Water-Pipes, with Branches of every description; Retorts for Gas and Oil Works; Gasholder Stands, Colums, &c.; Gas Purifiers, Condensers, and Gas Apparatus of all kinds; Foundry Work in general.

N. B.—A complete selection of Patterns on hand. Refer to any of the Gas-Works in the Western and Southwestern States.

THEODORE SCOWDEN, Engineer, Louisville.
JOHN JEFFREY, Civil Engineer, Cincinnati.
JACOB HOUGHTON, Engineer, Detroit.

WARREN FOUNDRY AND MACHINE CO., Phillipsburgh, N. J. Manufacturers of Cast-Iron Pipes, from 2 to 48 inch diameter, all pipes from 3 inch to 48 inch cast vertically, and in dry sand, in lengths of 12 feet. 2 inch pipes in lengths of 7 feet. Special Castings of all descriptions furnished at short notice.

REFERENCES.
Croton Aqueduct dept., N. Y.
Manhattan Gas Lt. Co., N. Y.
Brooklyn Water dept., N. Y.
Brooklyn Gas Lt. Co., N. Y.
Citizens' Gas Lt. Co., Brooklyn, N. Y.

IRON FOUNDRIES.

MORRIS, TASKER & CO., **PASCAL IRON WORKS,**
[ESTABLISHED 1821.]

PHILADELPHIA, manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues,

GALVANIZED WROUGHT IRON TUBES,

ARTESIAN WELL PIPES.

of Wrought or Cast-Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal Gas-works,; Cast-Iron Street Mains, Bends, Branches, Drips, &c.

GAS AND STEAM FITTERS' TOOLS, &c.

STEPHEN MORRIS, CHAS. WHEELER,
THOMAS S. TASKER, STEPHEN P. M. TASKER.

CAST IRON WATER, GAS, DRAIN AND HEATER PIPES, &c.,
COLUMBIAN IRON WORKS,
OFFICE, No. 46 NORTH SEVENTH STREET, Below Arch Street, Philadelphia.
THOS. M. ADAMS, Proprietor.

TO GAS AND WATER COMPANIES:

The undersigned, Agent for Messrs. Thomas Edington & Sons, Phenix Foundry, Glasgow, Scotland, is prepared to contract for all descriptions of Cast-Iron Pipes of their manufacture.

About 6,000 tons of these Pipes have lately been supplied to the Brooklyn Water-works, N. Y., and the Chief Engineer of the Works, A. P. Kirkwood, Esq., is ready to testify to their excellent quality.

ARCH'LD BAXTER, 28 Beaver St., N. Y.
Sole Agent for the United States and Canada.

CLAY RETORTS.

PHILADELPHIA FIRE-BRICK Works, corner of Vine and Twenty-third streets, Philadelphia.

JOHN NEWKUMET,

Manufacturer of all kinds of FIRE-BRICK, GAS-HOUSE TILES, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice

PATENT PYRO-CLAY GAS RETORTS. THOMAS HOADLEY, Patentee, wishes to call the attention of Gas-Engineers to these

RETORTS,

as a very superior article.

REFERENCES:—Gas-Light Works, Buffalo, N. Y.
" " Cleveland, O.
" " Chicago, Ill.

THOS. HOADLEY,
Corner of Main and Mulberry Sts., Cleveland, O.

NEW YORK FIRE-BRICK Manufactory. (Branch Works at Kreischerville, Staten Island.)

B. KREISCHER & CO., office 56 Goerck street, corner Delancy street, New York.

GAS-HOUSE TILES and FIRE-BRICK of all shapes and sizes. FIRE MORTAR, CLAY, and SAND articles of every description made to order at the shortest notice. B. KREISCHER, M. MAURER, A. WEBER.

ADDISON POTTER, WILLINGTON QUAY, NEAR NEWCASTLE-UPON-TYNE, ENGLAND, Manufacturer of CLAY RETORTS, FIRE BRICKS, and every description of FIRE CLAY GOODS.

ELLIMAN BROTHERS, 217 PEARL Street, New York, Commission Merchants, Importers of

BELGIAN FIRE-CLAY GAS RETORTS,

Dealers in Tiles, Arch-Bricks, Furnace-Doors, MOUTH-PIECES, COVERS,

And all other Fittings, of the most approved patterns, for setting Clay Retorts.

SABBATON'S PATENT FURNACE-DOORS, & FRAMES, Floyd's Patent Malleable Iron Retort Covers, McKENZIE'S PATENT GAS EXHAUSTERS, made by Addison Smith. Compensator-Valves, &c. Gas, Water, and Steam Tubes.

IRON RETORTS.

CELLULAR GAS-RETORTS.—C. M. CRESSON'S CELLULAR Gas Retorts, Patented October 3d, 1854. Adapted to the manufacture of GAS from Rosin, Coal, Wood, &c., and now in use at the Philadelphia Gas Works. Patent Rights for sale. For information apply to HENRY S. HAGERT, Attorney for Patentee, S. E. cor. of Walnut and Sixth sts., Philadelphia, Pa.

WATER-METERS.

H. R. WORTHINGTON'S PATENT Water-Meter.—This Meter combines accuracy, simplicity and remarkable durability, with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

HENRY R. WORTHINGTON, 61 Beekman street, N. Y.

GAS-ENGINEERS.

SCAMMON'S GAS-APPARATUS for Private Residences, Factories, Hotels and Cities. See engravings of Rosin and Coal Gas-Works in AMERICAN GAS-LIGHT JOURNAL for Dec. 1, 1860, pages 179 and 180.

STEPHEN SCAMMON, GAS-ENGINEER AND CONTRACTOR, 561 Broadway, New York.

GAS-WORKS ERECTED FOR Cities and Villages. Plans and Specifications furnished for works of any desired capacity, drawings of Retort Settings for Benches of one, two, three or five Retorts.

GAS APPARATUS of every description.

F. A. SABBATON, Gas-Engineer and Contractor, Albany, N. Y.

DIMMOCK, DWIGHT & CO. Engineers and Contractors for the erection of Coal Gas-Works. Offices 135 and 137 William street, New York City; and No. 2 Elm street, Springfield, Mass.

References by permission:

GEORGE D MORGAN, Esq., New York.
AARON CLAFLIN, Esq., "
A. B. WOOD, "
GEORGE BLISS, Esq., N.Y., Pres. M.S & N.I.R.R.Co.
GEO. M. ATWATER, Esq., Springfield, Mass.
JAS. D. BREWER Esq., Pres. Springfield Gas Co
JOHN I BAKER, Esq., Pres. Beverly Gas Co.
HENRY E. RUSSELL, Esq., Pres. N. Britain Gas Co.
J. DUNHAM, Esq, Pres. Norwich, Ct. Gas Co.
W. C. STREET, Esq., Sec. Norwalk, Ct. Gas Co.

THE AUBIN GAS-WORKS CO., OF ALBANY, N. Y., refer to the following Gas-Light Companies using their Works, to prove that Gas stocks can pay handsomely, and yet a rich and *cheap* Gas be made, viz.: Plattsburgh, Whitehall, Palmyra, Waterford, Bath, Amsterdam, Fort Plain, N. Y.; Rutland, Vt.; Flemington, N. J.; Smyrna and Dover, Del.; Jersey Shore and Pittston, Penn.; Greensboro and Salem, N. C.; Sorel, St. Hyacinthe, and Point Levi, Canada. Agents wanted to extend the sale of the Aubin Portable Gas-Works, unsurpassed for simplicity, safety and economy.

GAS AND WATER-PIPE.

W. & J. GRIFFITHS & CO.—City Tube Works, Malleable Iron and Brass Foundry, No. 27 North Seventh street, Philadelphia. Manufacturers of Wrought Iron Pipe, Lap-Welded Flues and Fittings; also, Brass Work of all descriptions, for Gas, Steam and Water. Particular attention given to Heating Buildings, &c.

PARIS'S PATENT

Glass-Enamelled Wrought Iron Tubes,
PROSSER'S PATENT
LAP-WELDED IRON BOILER TUBES.

TUBES FOR ARTESIAN WELLS, CONVEYING STEAM OR WATER, SHAFTING, &c., SCREWED OR COUPLED TOGETHER, in various ways.

THOS. PROSSER & SON, 28 Platt st., N.Y.

CAST AND WROUGHT IRON Pipe, Branches, Elbows, Sleeves, &c. Lamp-Posts, Wrought-Iron Lanterns for Lamp-Posts, Gas Retorts (clay or iron), Street Mains in 9 or 12 feet lengths. Sheet-Iron cut to pattern for Gas-holders. For sale by the Manufacturers' Agent,

HENRY G. NICHOLS, 24 Pine st., N. Y.

HUNTER, KELLER & CO., Manufacturers of *WROUGHT-IRON PIPES & FIXTURES,* of all descriptions, for

STEAM, WATER AND GAS.

144 Centre street, New York.

GIRARD TUBE WORKS—MURPHY & ALLISON, Proprietors. Wrought Iron Coke-Welded Tubes, for Gas, Water, Steam, &c. Wrought, Cast and Malleable Iron Fittings, Steam and Gas Cocks, Valves. Also, Galvanized Tubes and Fittings.

Office 1908 Market street, Philadelphia.

AMERICAN TUBE WORKS.—W. G. Smith & Co., Forty-sixth street, East of 10th Avenue, New York City. Manufacturers of WELDED IRON PIPE for Steam or Gas, of all sizes, from 1-8th to 3 inches.

GAS-BURNER.

T. G. ARNOLD, Manufacturer of Gas Burners, Mercury Cups, Portable Sockets, Burner Pillars, &c., No. 447 Broome street (second door west of Broadway), New York. Imported Scotch Tips and Burner Plyers always on hand.

ORNE'S PATENT FILTER-REGULATING GAS-BURNER, admitted by all practical and scientific men, who have examined its movements, to be

THE BEST GAS-BURNER YET INVENTED.

They are self-regulating, gas-purifying, indestructible, and most economical.

For sale by S. A. STETSON & CO., 350 Washington st., Boston.

PERFECTION.—This recent Improvement in Gas-Burners embraces the great economy of the Hicks Patent Burner, a gain of over 75 per cent. in light. This Burner is now offered to the Trade and all consumers of gas, at the price of the common burner. It is anti-corrosive, gives a uniform and beautifully-shaped blaze, under any pressure, and will not get out of order.

It has been adopted by the Manhattan and Brooklyn, N. Y., Gas-Light Cos., for street lamps.

Samples will be sent to each Gas Co. in the United States, if requested.

Address, L. E. HICKS, 385 Broadway, New York.